The Builder.

No. CXLI.

SATURDAY, OCTOBER 18, 1845.

FOR a long time past the church of St. Benet Fink, in Threadneedle-street, has presented a ruinous appearance to the passers-by, in consequence of the removal of the tower that stood at the west end of the building at the time the site was cleared for the new Royal Exchange and adjacent improvements.

The present church of St. Benet, Fink, so called from one Robert Finck, or Finch, who built a previous church on the same site (destroyed by the fire of 1666), was completed by Sir Christopher Wren, in 1673, at the expense of 4,130*l.* The tower was square, surmounted by a cupola of four sides, with a small turret on the top, and had a large recessed doorway on the north side, of very good design.

The arrangement of the body of the church is very peculiar,—we may say unique, and although far from beautiful, affords a striking instance of Wren's wonderful skill. The plan of the church is a decagon, within which, six composite columns in the centre support six semi-circular vaults, that are carried upon architraves and cornices to the external walls, and inwardly are faced with archivolts: between these rises an oval cupola. The effect of the series of arched chapels, so to speak, around the central area is singular. Wren's power of arranging a plan to suit the site is shewn in numerous buildings, but in none more forcibly than in this small church.

The destruction of this building was threatened some time ago, and elicited many expressions of regret from the public,—so many, indeed, that we had hoped the intention was abandoned. We now learn with infinite regret that the work of demolition is to be commenced almost immediately, and that the interesting structure in question will be cleared away entirely.

The destruction of a church should never be permitted without the most cogent reasons, let its architecture be what it may; and, if on no other ground, we should therefore protest strongly against the contemplated *improvement*; when in addition, however, the building threatened is seen to be the work of one of the greatest architects England ever had, a peculiar example of his skill, sound and likely to continue so, if not interfered with, much longer than half the new houses around it,—we feel bound to express our dissent from the intention in the strongest terms, with the faint hope that it may induce some member of the Improvement Committee to bring the subject once more under consideration before it be too late. It will be very easy to take the building down, but very difficult to replace it. Public convenience must of course be studied, and if St. Benet's stood in the way, and absolutely prevented the improvement of the thoroughfare, we should grieve at its removal, but bow to the necessity. This, however, is not the case, and we shall be forced to cry, shame on those who may be concurned in the wanton destruction of this valuable example of our great countryman's skill.

We refer our readers to a valuable and novel table for calculating the strength of cast-iron girders, which will be found on another page of the present number. It is prepared by a gentleman well known for his acquaintance with the subject.

THE BRIDGE-BUILDING FRATERNITIES IN THE MIDDLE AGES ON THE CONTINENT.

THE earliest method of passing large streams in ancient Gaul and Germany, was by the means of rafts, or even large bags of skins—as is known from inscriptions and other monuments. For the sake of assisting travellers, and aiding the circulation of merchandise, regular *guilds* of Lenuncularii, Lintrarii, and Utricularii were formed on the Seine, Sambre, Loire, Rhône, Durance, etc.; which, however, degenerated at times to that pitch, that they plundered travellers, and to use the expression of an ancient author, not only assisted in passing rivers, but even conveyed people into the waves of the Styx. Benevolent persons, therefore, decided on erecting at frequented places on the borders of rivers, hostelleries, constructing rafts, and, in fine, on building bridges.* These pious associations were called Pontifices (Ponties), resembling the ancient appellation of a similar kind. But the deserts and the memory of this truly *Christian* association—because there were *no* bridge-builders amongst the *fabri* of the Roman Empire—would have been probably lost, if it had not been preserved by the legend of a French shepherd called *Benezet*, whom the Roman Church reckons amongst their saints. It is, however, not known, whether Benezet was the founder of this society, or merely one of its first members. The wonderful acts which are ascribed to him have been the inducement for recording this association, which still is not sufficiently known. *Benezet*, which signifies the little Benedict, a poor shepherd, born at Hauvilas, in the Vivarais, came (according to narration) in 1177 into the Cathedral of Avignon, at the time when the Archbishop consoled the people about the horror of a solar eclipse. He declared himself called upon by heaven *to build a bridge* over the Rhône—a work then considered impossible, at least stupendous. The Archbishop treated him as a maniac (!), and sent him before the civil authorities, who proposed him, in the way of derision, to *begin* with a stone lying on the banks, such as twenty people could hardly have moved. Benezet *rolled* the stone away; and whatever we may think of the occurrence, still, it is a fact, that in 1185, already a toll was levied on the bridge of Avignon! Although it has been calculated that there was no solar eclipse in the year 1177—but the year following, such inaccuracy of date can hardly militate against the truth of the *leading features* of that legend. It does not detract from Benezet's merit either, that at his times, and even sooner, there existed pious fraternities for the comfort of travellers and pilgrims (Romieux)—which the holy men adapted to the building of bridges for all. Such has been the origin of that splendid monument of the middle ages—the most stupendous bridge in Europe, perhaps in the world. Its length extended to 2,770 feet, and was spread over twenty-one arches, which, however, were constructed in three *different* directions.* There is a charter of 1187, by which Johannes Benedictus, "Prior of the Bridge," obtained for himself and *brothers* a chapel and cemetery, and a chaplain. St. Benezet died in 1184; still in 1185 the bridge building fraternity began the construction of the Bridge of the Holy Ghost (*Pont du St. Esprit*) over the Rhône at Lyons, not finished but in 1305. It is now the largest bridge in Europe, being 2,524 feet long. This bridge also does not keep one straight direction, but has several bends, for adapting itself to locality, depth of water, &c. The bridge of Avignon was finished in 1188, and has always been considered as one of the wonders of France. There, I see it lie—long reaching, and smoothly laid over the Rhône, perceived from afar as you glide down the river. Popular tradition, which often leaves unheeded the so-called great deeds of the great, has faithfully preserved the memory of Benezet, and every peasant will tell you, that it was a shepherd who planned it. The finishing of this stupendous work confirmed the fame of the bridge-building fraternity, which was constituted and chartered in 1189 by Pope Clemens III.

Alike as its foundation is wrapt in obscurity, its shrinking also before the rays of (so-called) modern civilization, is not properly ascertained. How they ceased in Avignon, their head quarters, or whether they merged in some of the subsequent secular guilds, is not known. In other parts of France, as in Bon-Pas on the Durance, where charters of 1270 mention their existence; at Lourmain, between Aix and Apt, &c., their very name suddenly faints away in the noise and bustle of subsequent war and butchery.

As the construction of bridges was considered, in the middle ages, amongst the *works* of Christian *piety*,†—Italy, Spain, Sweden, and Denmark, possess several bridges which own the same origin, although it is not yet ascertained whether regular fraternities existed for that purpose. Still the Swedish chronicles mention one Benedict between 1178 and 1191, as a bishop and bridge-builder at *Skara*, who, a contemporary of Benezet, might have become illuminated from the same source. As the Templars of Spain had the duty of aiding the passing of pilgrims to Jerusalem, the old Roman road in Lower Navarra received the name of the Templar's Road. With such and similar pursuits, it cannot be wondered that the property of the bridge-building fraternity was, in many instances, surrendered to the order of St. John of Jerusalem (*frères hospitaliers*) and thus merged into it. The traces of analogous fraternities in Germany (England?) have not yet been properly examined. To its examination in France, *two* great names have chiefly contributed, *Gregoire*† and *Millin*. It was an ancient inscription near Mirabeau, on the Durance, found in the chapel near the place where the raft ordinarily starts from, which gave rise to the whole inquiry. It may be interesting for our readers to know, that the habit of the Knights of the Hospital of *St. Jacques-du-haût-pas*, at Paris (most probably an analogous fraternity in those times), exhibits, as shewn in their sepulchral monuments, a *pick* on their breast—while that of the Holy Ghost fraternity of Monpelliers consists of two road bridge-arches and a cross. [From German sources]. J. L.

* It is strange to observe, that most of the actual *speculations* of our times were objects of philanthropy in the middle ages. So, moreover, the business of pawnbroker, whence the Italian and French name: *Monte de Pietà, Mont de Piété—mount of piety.*

* Details and drawings of this stupendous construction are to be found in *Gauthey* "Traité de Construction des Ponts; whence they have been copied into *Wiebekings* "Art of Water-building."

* Morini Sacram. Pœnitentiæ. Paris, 1655, p. 768.

† Recherches historiques sur les fabres pontifices. Paris, 1818, 8vo.

NEW CHURCH AT WILTON, NEAR SALISBURY.

THE new church at Wilton, dedicated to St. Mary and St. Nicholas, was consecrated on the 9th inst.

IT is of Byzantine architecture, coeval with the Norman of this country, *i. e.* of the eleventh century. It is 150 feet long, 50 wide, and 57 feet high internally, and is entirely faced with freestone, the inner portion of the walls being of brick. It stands upon a platform running all round the church, and is approached in front by a flight of six steps of Portland stone, the lowest step being about 100 feet in length. The plan consists of a central porch, a nave, side porches and aisles, chancel, chancel aisles, and three apsides, with a vestry and a bell campanile connected with the church merely by an open cloister, which is very richly ornamented, and consists of double columns on each side, standing on a basement or plinth. The building as a whole, externally, presents an imposing aspect, standing, as it does, isolated in the midst of an extensive area, and the general effect is unimpaired by the contiguity of other and incongruous buildings. The church stands well back from the street, from which it is divided, close to the footway, by a low wall, surmounted by handsome iron railings. The elevation on this side has three rich door-ways, in recessed arches, the principal one being elaborately carved with six columns. In the centre are a series of small windows, lighting a passage

and staircase at the back of the gallery; a rose window, 16 feet in diameter, with twelve compartments richly carved, having the four evangelical emblems at the angles, fills the centre.

The clerestory is supported on columns of Bath stone, having capitals of rich and varied sculpture, executed with most delicate skill. Semicircular arches, and a row of triforium windows lead to the windows in the clerestory. The roofs of the naves and aisles are of open wood-work, the external covering being of slate.

The pavement of the centre aisle is inlaid in a series of ornamental crosses, and the chancel floor is covered with a mosaic pavement in rich and varied colours and design, approached by a flight of six steps from the nave. From the chancel, three Italian marbles steps, 18 feet in length, lead to the central apse, which has also a most splendid inlaid marble pavement, and is richly ornamented by marble columns, forming a reredos of seven panels, which are thus filled:—In the centre, the Cross, with the inscription, "He was wounded for our transgressions;" in the four adjoining compartments, the Lord's Prayer, the Creed, and the Beatitudes; and in the two extreme panels, the Cross, and other scriptural ornaments illuminated by Mr. Osmond, jun., of Salisbury.

The font is of various coloured marbles. The desk, from which the lessons are read, stands in the centre aisle, supported by a large carved and gilt eagle, standing upon a pedestal ornamented with mosaic panels. The pulpit, which forms a quarter of a circle, and is concentric with one of the stone pillars of the nave, is perfectly unique. Nine marble columns, with carved alabaster capitals, form its support, surmounted by a freize and cornice in Caen stone, with a row of twisted marble columns richly inlaid in curious tesselated ornamental work, partly in marble. The desk is of wood, richly carved in groups representing the Apostles, in bold relief.

The chancel rails afford a kneeling space of sixty feet in length, and the communion-table is the one hitherto used in the old church.

One of the chancel aisles contains a choir organ, recently enlarged and altered by Mr. Bevington, of London, assisted by Mr. Prangley, of Salisbury. In the apse of this chancel aisle is a large and massive parish chest of ancient workmanship; and the opposite chancel contains several large and handsome monuments of members of the Pembroke family, removed hither from the old church.

The country owes thanks to the Right Hon. Sidney Herbert for the erection of this costly structure, and we congratulate him on the manner in which his intentions have been carried out by his architects, Messrs. Wyatt and Brandon. The builders are Messrs. D. and L. Jones, of Bradford. Mr. Edmund Spurr was clerk of the works. The coloured decorations were executed by Mr. Willement.

THE NEW THEATRE ROYAL, MANCHESTER.

This building, erected in Peter-street, in place of that in Fountain-street, lately destroyed by fire, was opened on the 29th ultimo. The architects are Messrs. Irwin and Chester, of Manchester, and the building has been constructed by Messrs. Pauling and Henfrey. The external dimensions are 200 feet in length, on the longest, and 171 feet on the shortest side, and 69 feet in width. Exclusive of the rooms and hotel, at the back, the theatre is about 155 feet in length. Though the area little exceeds 1,400 square yards, the space is more available than that of the late theatre, which was nearly 1,800 square yards.* The internal dimensions are:—from the back wall of the centre box to the back wall of the stage, 120 feet, and between the side walls of boxes 55 feet. Mr. Beazley has expressed his opinion,† that a theatre should not exceed 50 feet in diameter from box to box, or 55 feet from the curtain to the front box, considering this size the best for sound, and scenic effect. He prefers the form approaching the horse-shoe. In the new theatre, from the curtain to the balcony of the centre box is 45 feet, nearly 4 feet less than the old theatre; and across the pit, between the boxes, the distance is 40 feet. The centre boxes are 15 feet deep, with six rows of chairs:—the upper tiers of boxes have seven rows of seats. The ceiling of the theatre is 48 feet above the floor of the pit. The stage advances towards the house in a curved form on the plan, 15 feet in advance of the curtain, and is 75 feet from the "float" to the back wall. The form of the horse-shoe is very slightly contracted at the proscenium, as in the English Opera House, and is presumed to be very favourable for the effect of vocal performances. The theatre is built of brick, with a lofty stone front in Peter-street. This consists of two Corinthian columns *in antis*, inclosing a recessed portico, and supporting an arch. The entablature returns round the back of the portico, in the centre intercolumn. The whole is surmounted by a plain pediment, not forming part of the order. The building, being isolated, has better arrangements for ingress and egress, than often we find in London theatres. The audience part of the house consists of four tiers, and the pit floor. On the floor, which has a fall, towards the stage, of 2 feet 6 inches, are the stalls, the orchestra, and the pit, which last extends under the boxes. There are two tiers of boxes, with the slips, and lower gallery above, and an upper gallery in the centre, formed within the roof. The supporting pillars to these tiers are placed at the back of the boxes, so that there is no impediment to the view, and it was here that all the skill of the architects was called for. Iron girders are employed to support the overhanging fronts of the boxes, tailing into the work an equal distance in the opposite direction, and being firmly screwed down at this extremity, and tied by a rod of iron to the lower part of the work, and further weighted down by a pile of brickwork. Omitting the hotel, the rooms in the theatre include two green-rooms, dressing-rooms, wardrobe, and costumier's room, treasury, manager's room, and others. The carpenter's workshop is in the roof over the pit: the property-man's room, the painting-room, 64 feet long, by 15 feet wide, with its two large "frames," each 40 feet by 22 feet, are above the stage and rooms at the back: the gas-fitter's and smith's places, and rooms of the supernumeraries are in the lower floors; and beneath the green-room is a tuning-room, where the band can practise, without being heard by the audience. The building has taken longer to complete than was expected, being commenced in October 1844: it should have been completed by the 1st of July last, and even now the saloons are incomplete. Adjacent to the saloon of the dress circle, is a cloak-room for gentlemen, and retiring rooms for ladies. These apartments are to be fitted up, in a costly manner, with marble chimney-pieces, with black and gold, and will be lighted by handsome cut-glass chandeliers. The dimensions of the saloon of the upper boxes are 30 feet by 17 feet, and in the centre the roof is vaulted in a semicircular arch, springing from an entablature, which is supported by Corinthian columns. The ceiling is panelled, and enriched with ornaments. The accommodation in the audience part of the house is as follows:—The stalls will seat seventy-seven persons; the seats in the pit, in eleven rows, will seat 500 persons. The dress circle contains 300 chairs, and is entered by nine doors. The next tier will accommodate about 350 persons, exclusive of two private boxes, which are on the same level. Neither of the tiers have the usual box barriers. The next tier comprises the lower gallery, and the slips: the former will hold about 450 persons, and the latter 110 persons. The upper gallery will seat about 300 persons. The private boxes are eight in number,—four on each side the house. The larger boxes are furnished with twelve chairs each, and the smaller with six chairs. Three boxes on each side are in the proscenium. One of these is the proprietor's box, having a stair adjoining, leading to near the station of the prompter, and a window, looking on to the stage. Each of the six proscenium boxes has an ante-room with fire-place. Though the number of persons able to be accommodated has been stated, as above—in the total 2,147 persons,—the number present on the opening night was 2,468 persons.

The stage has a rise of 2 feet 9 inches in the 75 feet, from front to back; and in this part of the house are many improvements in mechanism. The side scenes or "flats," which at Drury-lane Theatre are preserved in the large space at the back of the stage, are here so contrived as to ascend or descend, and the ground has been excavated 21 feet below the level of the stage for the purpose. About 8 feet below the stage is a mezzanine floor, useful in the working of the "traps" required in pantomimes, and for the disappearance of spectres. The traps are all on an improved plan, and are worked by counterbalance weights. The largest trap is 30 feet in length, and will ascend above the stage;—it is worked by a large windlass in the basement floor. The whole of this part of the building is admirably contrived. The whole of the interior decorations were from the designs of Mr. Chester, and were executed by Mr. George Jackson, of Manchester. The style is Italian, with a character of *renaissance*. The fronts of the different tiers are enriched with scrolls of excellent design, executed in *carton pierre*, and gilded. There is great variety in the designs, and they are well relieved. The colours employed are almost exclusively white and gold. The proscenium is enriched with pilasters, surmounted by a circular pediment, its tympanum filled with elaborate decoration, and having on each side a gilded statue. The whole of these decorations are of the richest description, and are in the highest degree creditable to Mr. Jackson. It is stated in the *Manchester Guardian*, that upwards of 2,000 books of gold leaf were consumed. The large chandelier, and the smaller ones, were all designed by Mr. Chester, and were supplied by Mr. Agnew, of Manchester. They are of excellent design. The largest cost about 150*l*. As a provision against fire, a large reservoir has been constructed on the roof of that part of the building, which is behind the stage. The roof itself—by means of parapet walls, coated with a species of asphalte, termed *Paraqua*, has been converted into one cistern, which will hold a depth of water of 18 inches, in all about 20,000 gallons. A large iron pipe descends from this enormous tank, with openings, one on the level of the green-room, and the other on the stage, near the hall door. Each orifice is prepared to receive a long canvass tube or hose, which is suspended close by, and can be attached in a few seconds.

Thus a copious supply of water is obtained, which can at once be directed to any part of the theatre. From inquiries, from parties present in the pit, on the opening night, we find, that the warming and ventilating arrangements are there of the best description. From a visit to the upper and lower galleries on another evening, we can assert, that the ventilation is much more perfect, than usually found in such elevated regions. This part of the work was executed by Mr. Wm. Walker, of Manchester. Cold air, being admitted into the basement, is there heated, and admitted separately to all the different parts of the house; the vitiated air is discharged by shafts, and apertures on every floor, and by a large aperture in the ceiling.—The cold air is admitted by two window apertures into the vault, in which is placed a large furnace. Over this is a water-boiler, with connecting pipes to heating boxes. There are five heating boxes, each of which contains upwards of 200 square feet of heating surface, within a comparatively small space; and to attain the same amount of heat, under the old plan, would have required a large chamber. Of this system we shall probably give some further account. From these boxes, five brick shafts proceed beneath the pit, in various directions, branching off to the different parts of the house, and by means of perforations in the floors, the warm air is distributed equally. There are internal openings, within the ceiling of each tier for the discharge of the vitiated air, and all these are connected with the main shaft, which is of considerable diameter, and passes out through the roof, above the aperture over the large chandelier.

The total cost, including land, building, furnishing, and fitting up, will reach 23,000*l*. The work is in the highest degree creditable to the architects, who have interested themselves in all the details with zeal and success. We are glad to hear that they were presented with testimonials on the opening night.

* We have to acknowledge the attention shown to us by the architects, during several examinations of the building, previous and subsequent to the opening. We suppose that their very arduous duties prevented their supplying us with the data, and dimensions, promised, and which we have here taken from the *Manchester Guardian*. But, we are assured by them, that the data given are substantially correct.

† Vide the Report of the Committee on Dramatic Literature. 1832.

TABLE

For facilitating the Computation of Cast-Iron Beams; such as are usually employed for Bearers in Buildings and on Railways.

ARGUMENT.—Inches and tenths in the depth of the section.

In.	·0	·1	·2	·3	·4	·5	·6	·7	·8	·9
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
0	0·0000	0·0038	0·0152	0·0342	0·0608	0·0950	0·1368	0·1862	0·2432	0·3078
1	0·3800	0·4598	0·5472	0·6422	0·7448	0·8550	0·9728	1·0982	1·2312	1·3718
2	1·5200	1·6758	1·8392	2·0102	2·1888	2·3750	2·5688	2·7702	2·9792	3·1958
3	3·4200	3·6518	3·8912	4·1382	4·3928	4·6550	4·9248	5·2022	5·4872	5·7798
4	6·0800	6·3878	6·7032	7·0262	7·3568	7·6950	8·0408	8·3942	8·7552	9·1238
5	9·5000	9·8838	10·2752	10·6742	11·0808	11·4950	11·9168	12·3462	12·7832	13·2278
6	13·6800	14·1398	14·6072	15·0822	15·5648	16·0550	16·5528	17·0582	17·5712	18·0918
7	18·6200	19·1558	19·6992	20·2502	20·8088	21·3750	21·9488	22·5302	23·1192	23·7158
8	24·3200	24·9318	25·5512	26·1782	26·8128	27·4550	28·1048	28·7622	29·4272	30·0998
9	30·7800	31·4678	32·1632	32·8662	33·5768	34·2950	35·0208	35·7542	36·4952	37·2438
10	38·0000	38·7638	39·5352	40·3142	41·1008	41·8950	42·6968	43·5062	44·3232	45·1478
11	45·9800	46·8198	47·6672	48·5222	49·3848	50·2550	51·1328	52·0182	52·9112	53·8118
12	54·7200	55·6358	56·5592	57·4902	58·4288	59·3750	60·3288	61·2902	62·2592	63·2358
13	64·2200	65·2118	66·2112	67·2182	68·2328	69·2550	70·2848	71·3222	72·3672	73·4198
14	74·4800	75·5478	76·6232	77·7062	78·7968	79·8950	81·0008	82·1142	83·2352	84·3638
15	85·5000	86·6438	87·7952	88·9542	90·1208	91·2950	92·4768	93·6662	94·8632	96·0678
16	97·2800	98·4998	99·7272	100·9622	102·2048	103·4550	104·7128	105·9782	107·2512	108·5318
17	109·8200	111·1158	112·4192	113·7302	115·0488	116·3750	117·7088	119·0502	120·3992	121·7558
18	123·1200	124·4918	125·8712	127·2582	128·6528	130·0550	131·4648	132·8822	134·3072	135·7398
19	137·1800	138·6278	140·0832	141·5462	143·0168	144·4950	145·9808	147·4742	148·9752	150·4838
20	152·0000	153·5238	155·0552	156·5942	158·1408	159·6950	161·2568	162·8262	164·4032	165·9878
21	167·5800	169·1798	170·7872	172·4022	174·0248	175·6550	177·2928	178·9382	180·5912	182·2518
22	183·9200	185·5958	187·2792	188·9702	190·6688	192·3750	194·0888	195·8102	197·5392	199·2758
23	201·0200	202·7718	204·5312	206·2982	208·0728	209·8550	211·6448	213·4422	215·2472	217·0598
24	218·8800	220·7078	222·5432	224·3862	226·2368	228·0950	229·9608	231·8342	233·7152	235·6038
25	237·5000	239·4038	241·3152	243·2342	245·1608	247·0950	249·0368	250·9862	252·9432	254·9078
26	256·8800	258·8598	260·8472	262·8422	264·8448	266·8550	268·8728	270·8982	272·9312	274·9718
27	277·0200	279·0758	281·1392	283·2102	285·2888	287·3750	289·4688	291·5702	293·6792	295·7958
28	297·9200	300·0518	302·1912	304·3382	306·4928	308·6550	310·8248	313·0022	315·1872	317·3798
29	319·5800	321·7878	324·0032	326·2262	328·4568	330·6950	332·9408	335·1942	337·4552	339·7238
30	342·0000	344·2838	346·5752	348·8742	351·1808	353·4950	355·8168	358·1462	360·4832	362·8278
31	365·1800	367·5398	369·9072	372·2822	374·6648	377·0550	379·4528	381·8582	384·2712	386·6918
32	389·1200	391·5558	393·9992	396·4502	398·9088	401·3750	403·8488	406·3302	408·8192	411·3158
33	413·8200	416·3318	418·8512	421·3782	423·9128	426·4550	429·0048	431·5622	434·1272	436·6998
34	439·2800	441·8678	444·4632	447·0662	449·6768	452·2950	454·9208	457·5542	460·1952	462·8438
35	465·5000	468·1638	470·8352	473·5142	476·2008	478·8950	481·5968	484·3062	487·0232	489·7478
36	492·4800	495·2198	497·9672	500·7222	503·4848	506·2550	509·0328	511·8182	514·6112	517·4118
37	520·2200	523·0358	525·8592	528·6902	531·5288	534·3750	537·2288	540·0902	542·9592	545·8358
38	548·7200	551·6118	554·5112	557·4182	560·3328	563·2550	566·1848	569·1222	572·0672	575·0198
39	577·9800	580·9478	583·9232	586·9062	589·8968	592·8950	595·9008	598·9142	601·9352	604·9638
40	608·0000	611·0438	614·0952	617·1542	620·2208	623·2950	626·3768	629·4662	632·5632	635·6678
41	638·7800	641·8998	645·0272	648·1622	651·3048	654·4550	657·6128	660·7782	663·9512	667·1318
42	670·3200	673·5158	676·7192	679·9302	683·1488	686·3750	689·6088	692·8502	696·0992	699·3558
43	702·6200	705·8918	709·1712	712·4582	715·7528	719·0550	722·3648	725·6822	729·0072	732·3398
44	735·6800	739·0278	742·3832	745·7462	749·1168	752·4950	755·8808	759·2742	762·6752	766·0838
45	769·5000	772·9238	776·3552	779·7942	783·2408	786·6950	790·1568	793·6262	797·1032	800·5878
46	804·0800	807·5798	811·0872	814·6022	818·1248	821·6550	825·1928	828·7382	832·2912	835·8518
47	839·4200	842·9958	846·5792	850·1702	853·7688	857·3750	860·9888	864·6102	868·2392	871·8758
48	875·5200	879·1718	882·8312	886·4982	890·1728	893·8550	897·5448	901·2422	904·9472	908·6598

DESCRIPTION AND USE OF TABLE,

FOR CALCULATING STRENGTH OF CAST-IRON BEAMS.

THE numbers in the foregoing table are of the greatest use in estimating the strength and dimensions of cast-iron beams, when employed as girders or breastsummers in large and important structures. They have been computed for the limit of safety, from the results of experiments performed on a medium quality of the material, and may therefore, be considered as better adapted for general practice, than if they had been obtained from metal approximating to either extreme of hardness or softness, and in consequence possessing a higher degree of rigidity or flexibility, according to the nature of the approximated extreme. The numbers in the body of the page are expressed in tons and decimals of a ton; those in the left-hand column are inches in the depth of the transverse section, and those at the top of the columns, numbering from 0 to 9, are tenths of an inch also in the depth of the transverse section, so that the table embraces a depth of section for every tenth of an inch from zero to forty-nine inches, and is, consequently sufficiently extensive for every practical purpose, as it seldom happens, even in the very largest works, that a section is required exceeding four feet in the direction of the strain.

The chief advantage which this table possesses over others of a similar character that have long been in use, consists in its brevity and the extent of its application; and these advantages it derives from the circumstance of being computed for one inch of thickness or breadth of section, and one foot in the length of bearing or distance between the supports; this in some respects, is a very great convenience, and more especially, where extensive calculations are necessary; but it is in some degree objectionable, as it requires a subsidiary multiplication and division to obtain the final result; this objection however, has very little force when placed against the advantages which are otherwise afforded by the arrangement.

The following examples will elucidate the use of the table under various circumstances, and, being of a practical nature, it is hoped they will be found of value to the mechanic, in guiding him to the calculation of similar cases that may happen to present themselves in the course of his practice.

Example 1.—A cast-iron beam of a regular rectangular form both in elevation and section, is loosely supported in a horizontal position on two walls at the distance of 26 feet from each other; what load will it sustain with safety applied at the middle of its length, or at an equal distance from each wall, supposing the breadth of the section to be $2\frac{1}{2}$ inches and the depth 30 inches?

Now, the arrangement indicated by this example is perfectly obvious, and therefore requires no diagram to illustrate it; and the argument with which the table is to be entered is simply the depth of the section in inches; consequently, under zero or 0 at the top of the table, and opposite 30 in the left-hand column we find the number 342, which is the number of tons that a beam of the same depth as that which is given will support, when the breadth is one inch, and the length of bearing one foot. But, according to the laws of resistance, the strength is directly as the breadth when the depth is given, and inversely as the length of bearing; that is, *multiply the tabular strength by the given breadth of section, and divide by the length of bearing for the weight which the beam can sustain with safety under the given conditions.*

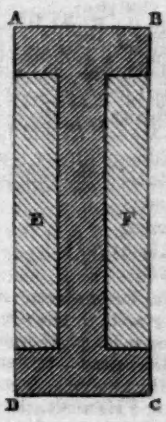
Hence we have $342 \times 2\frac{1}{2} = 855$, and this divided by 26, gives $855 \div 26 = 32\frac{23}{26}$ tons, the load that the given beam can sustain at the middle of its length; but this includes the effect produced by the weight of the beam itself, which ought always to be taken into consideration; for when omitted, as is too frequently the case on many important occasions, the omission may be attended with very serious consequences.

It is demonstrable by the principles of mechanics, that the effect produced by the weight of the beam itself in augmenting the strain, is the same as if one-half that weight were applied to the middle of its length, and in consequence of this mechanical condition, the calculated strength must always be diminished by half the weight of the beam, when that weight itself can be determined, which indeed can always be done when the dimensions of the beam are known. Now in the present instance, the area of the middle transverse section is 75 square inches, for $30 \times 2\frac{1}{2} = 75$, and since the section is uniform throughout the length, the weight of one foot in length for cast-iron of medium specific gravity may be taken at 240lbs., that is, 3·2lbs. for a bar one inch square and one foot long; consequently, for 13 feet or half the length of the beam, it is $240 \times 13 = 3{,}120$ lbs. or $1\frac{1}{10}$ tons, for the effect produced by the weight of the beam, therefore, by subtracting this from the calculated strength, we get $32\frac{23}{26} - 1 = 31\frac{17}{26}$ tons, the safe load on the middle of the beam.

Now, all this is perfectly obvious when a beam of the given form is supported at the ends and loaded in the middle of its length, but when the load is uniformly diffused between the points of support, the load as calculated above may be doubled without producing any difference in the effect of the straining force as referred to the central rupture, the deflection only being varied in consequence of the uniform load. But if the ends of the beam be firmly fixed into the walls, instead of being merely supported on them, then the load which it can safely sustain under this latter condition, when applied at the middle of the length, is one-half more than when the ends are loose, and the same thing holds when the load is uniformly diffused throughout the length.

However useful the foregoing table may be when applied to the calculation of beams of which the transverse section is simply rectangular, it becomes much more so when applied to beams of that form of section now so generally employed in flooring and in the construction of railways, viz., those which have a flange or feather on the upper and the lower side, known as the *double flanged*, or **I** *formed section.*

The formula which supplies the rule for this form of beam is of rather a complicated character, and in consequence is somewhat difficult to apply; but when we consider the section as being equal to the difference between two rectangular sections, the difficulty disappears, and the calculation is performed by our table with the greatest imaginable ease.



The section thus constituted is represented by the dark shaded part of the marginal figure, the lighter shaded parts E and F being left out to form the feathers or flanges at the upper and lower sides of the beam.

Here then it is obvious that if we consider the section to be an entire rectangle, as denoted by ABCD, the strength of that section may be calculated as in the preceding case. And, in like manner, the parts marked E and F may either be considered as forming two independent rectangular sections, or they may be brought together and considered as one section only, being of precisely the same value as to strength in either case; then, if the strength of the rectangular section, which is made up of the parts marked E and F, be subtracted from the strength of the entire section ABCD, the remainder will be the strength of the double flanged or **I** formed section so universally employed in the construction of railway arches. It may, however, be proper to remark, that the strength of the section denoted by E and F, must undergo some modification before the subtraction takes place, for it is a well established fact, that the metal which is to be withdrawn, is not in the same mechanical condition with respect to strength when incorporated with the mass, that it is when considered by itself, or in the state of detachment; it therefore becomes necessary to reduce the strength of that which is to be subtracted when calculated by the table, in the proportion of the whole depth of the section, to the depth of the middle part denoted by the lighter shaded portions, E and F.

Example 2. Let the whole depth of a double

flanged beam of uniform section throughout the length, be 38·7 inches, and the depth of the middle part, or that between the flanges 2·5 inches; what weight will it sustain at the middle of its length, supposing it to be supported on two props 36 feet asunder, the whole breadth being 9·3 inches, and the thickness of the middle part 3·1 inches?

Referring to the table opposite 38 inches in the left hand column, and under ·7 at the top, we find the number 569·1222, which being multiplied by 9·3, the whole breadth of the section gives 5292·83646 tons, for the strength of a beam of the given section considered entire, one foot long.

From the whole breadth of the section, subtract the thickness of the middle part, and we get 9·3—3·1=6·2 inches, for the breadth of the section composed of the two portions marked by the letters E and F, of which the depth is 32·5 inches; then opposite 32 in the left-hand column and under ·5 at the top of the table, we get 401·375, which being multiplied by 6·2, gives 2488·525 tons, for the strength of a beam of the section 32·5 by 6·2 inches, and 1 foot in length; but before this strength be taken from that of the whole section previously calculated, it must be reduced in the proportion of the depths; thus we have

38·7 : 32·5 : : 2488 525 : 2089·84657 tons.

Let this therefore be taken from the strength of the whole section, and let the remainder be divided by the length of bearing, and we get (5292·83646 — 2089·84657) ÷ 36=88·972 tons nearly.

And in this way may the strength of any other beam of the same form be calculated; thus avoiding the difficulty incident to the formula and the rule deduced from it; and by reversing the operation, the dimensions may be found to sustain any required load, when certain other dimensions are given. T.

REMAINS OF THE FRANCISCAN FRIARY AT READING.

At the late meeting of the Archæological Institute, Mr. John Billing, architect (of Reading), read a paper on the history and present state of the friary in that town, the interesting ruins of which building are seen on approaching Reading by the railway. The following is the substance of the communication:—

At the north-west extremity of the town of Reading stands what was formerly the house of the Friars Minors. It was a religious foundation of the Order of St. Francis, which was introduced into England in 1224—the eighth year of Henry III.,* and was founded in Reading in 1233.

By a deed, dated that year,† July 14, Adam de Lathbury, then abbot, and the convent of Reading granted to the Friars Minors in Reading "a certain piece of waste ground near the King's highway leading to Caversham-bridge, containing thirty-three perches in length, and twenty-three in breadth, with a permission to build and dwell there so long as they should continue without acquiring any property of their own;"—but as the deed recites—"if at any time, by any accident, or by any means, it should come to pass that the Friars Minors should have any property, or any thing of their own, they have agreed for themselves and their successors for ever, that it should be lawful for us and our successors, by our own authority, to expel them from every part of our land, without the hinderance of any contradiction or appeal."

Under the same penalty of expulsion, the friars "were bound not to seek any other habitation on any part of the abbey lands; nor to extend the limits of what was already granted them; nor to request any thing but what was gratuitously and spontaneously allowed them; nor to receive any oblations, tithes, or mortuaries due to the abbey. If the friars should be expelled by the monks of Reading Abbey for any other causes than those above-mentioned, it was agreed that they should be reinstated by the King's authority, and enjoy in their own right what had been granted them by the abbey. If the friars should voluntarily relinquish their habitation, the buildings and site of the edifice should belong to the abbey."

* Leland's Colectanea, vol. iii., p. 341.
† Cotton. Library. Vespasian, E. 25.

By a subsequent deed, another piece of ground was granted them, immediately contiguous to the area already occupied by them; the conditions are the same as in the former grant, except the addition of a clause restraining them from interring in their cemetery, church, or any other place, the bodies of the parishioners of the monastery, or of any other of the churches belonging to the abbey in the town of Reading, or elsewhere, without special licence. This deed is dated the 7th before the Kalends of June, in the year 1285.

In 1288‡, Robert Fulco left by will to the Friars Minors in Reading, certain void pieces of ground in New-street, now Friars-street, adjoining to their former possessions. Edward I., in his thirty-third year, 1306, issued a precept to John de London, clerk, constable of his Castle of Windsor, to this effect—"Whereas our beloved and faithful subject, Robert de Lacy, Earl of Lincoln, hath given to our beloved in Christ, the friars minors residing at Reading, fifty-six oaks of the most proper for building timber in his wood of Asherigge, which is within the limits of our forest of Windsor, we command you that you permit the said friars to cut down the said oaks, and carry them wherever they please, and consult their own convenience in the same. Witness, the King at Odyham, the 11th day of January. The buildings for which this timber was required were not completed before 1311, as Alande Bannebury, who died at Reading in that year, bequeathed by will "*operi fratrum minorum*," to the work or building of the Friars Minors, five shillings.

We have no account of the building, nor of the number of the friars who resided in it; from the small extent of the ground, it was neither roomy nor elegant, content, agreeably to the spirit of their order, with the meanest accommodation for themselves, their principal care seems to have been to erect a house of prayer suitable to the religion they professed, which from its being more substantially built is the only part of their possessions which has withstood the ravages of time.

DESCRIPTION OF THE RUINS.

The church as it now stands consists of a nave with north and south aisles. Originally there was a chancel and a tower, as we are informed by Dr. London in a letter to Thomas Lord Cromwell, dated Sept. 17th, at Reading, in the 30th year of Henry VIII., that "as soon as he had taken the friars surrender, the multitude of the poverty of the town resorted thither, and all things that might be had they stole away, insomuch that they conveyed the very *clappers* of the *bells*." All that now remains of the chancel is the arch and pillars, and this is partly bricked up in the wall of an adjoining house. There are no remains of a porch, but it is not probable that so large a church could have been destitute of this essential feature. The south doorway is of two orders, deeply recessed, and consists of a succession of deep hollows with two members of what has been called the "pear-shaped moulding." There are no jamb shafts, but the mouldings continue down the jambs and die away on the plinth.

The walls are built of flint with stone quoins, and plastered inside. Externally the flint work is laid in regular courses and the flints split and squared. The skill and management of the old builders, and the ease with which they made the most rugged materials bend to their purpose, was never better displayed than in the construction of these walls; the thin, narrow joints, sharp surface, and beautiful appearance of the flint work far surpasses the best attempts of modern days, and proves, whatever else the church might have been, that it was at least the school of sound architects and good workmen. The aisles are separated from the nave by a stone arcade of five compartments, the two nearest the chancel being narrower and more acutely pointed than the others. The mouldings of both pillars and arches are very well worked and in tolerable preservation, and belong in common with nearly every other part of the church to the style of architecture prevailing in the early part of the fourteenth century, now perhaps better known as the "Decorated."

The west window is by far the finest part of the whole edifice, and even now, worn and dilapidated as it is, presents a beautiful appearance. The tracery is of a flowing character, simple but elegant, and when the west front was in its original state, the east roof complete, and the lofty tower in the back ground completing the picture, must have been as perfect a composition as any of its kind.

The aisle windows are of three lights with segmental heads; the mouldings are remarkably plain, but in this style we frequently find very beautiful and sometimes intricate combinations of tracery, with but meagre and shallow mouldings; the heads are divided similarly to the west window, feathered and cusped. The label mould to these windows, to the west window and arcades, is precisely the same in contour, differing only in size.

The aisles terminated with the nave, and were pierced with one east window in each; of what kind we can scarcely tell, one end being so completely covered with ivy, that it defies penetration, and the other bricked up, shews nothing but the mere outline of the window, which differs from the aisles, inasmuch as it is longer and acutely pointed. There do not appear to have been any west windows to the aisles. No traces of the floor are visible, neither could we on digging discover any remains of pavement or tiles—the floor probably was taken up when the church was converted into a bridewell, the nave being divided off into airing yards.

It is to be lamented that this fine relic of ancient art is devoted to no better purpose than that of a prison. The present scanty church accommodation would be an ample reason for restoring it to a somewhat more decent state, and as the walls and arches are undisturbed, a small expenditure would render it at once fit for worship and an ornament to the town. As before remarked, the style is "decorated." The building was commenced in the reign of the first Edward, during whose dynasty, and that of the two succeeding monarchs of his name, Gothic architecture having worked itself free from the Norman, and the somewhat stiff though still elegant characteristics of the Early English, attained a degree of beauty and splendour unrivalled either before or since.

After existing for rather more than two hundred years, this friary, in common with the possessions of the monks of this place, fell a prey to the rapacity of Henry VIII., to whom, according to the deed of surrender, bearing the date of September 13th, 1539, the monks gave up the house with all its advantages, and finally relinquished their order.

After the surrender, Dr. London, in a letter to Thomas Lord Cromwell (Sept. 17th), said that the "honest men of Reading" had no place for properly administering justice, and begged that they might have part of the friary for that purpose:—"Ther town hall ys a very small house and standeth upon the ryver wher is the comyn wassching place of the most part of the town, and in the session dayes and other court dayes ther ys such betyng of bateldores as one man cannot hear another, nor the guest here the chardg gevyn. The body of the house of the grey friers, wich is seyld with lath and lyme, would be a very commodious room for them, and now that I have ridden all the fasschen of that church in parcleses, ymages, and awltars, it wold make a gudly town hall. The mayer of that town, Mr. Richard Turner, a very honest gentill p'son, wh many other honest men hath exp'ssyed unto me ther gref in thys behalf, and have desyred me to be an hu'ble sutar unto yor lordeschippe for the same. If it sholde be solde the wallys besyde the coyn stones be butt chalk and flynt and the cov'yring but tile. And if it please the king's gr. to bestow that house upon any of his s'rvants he may spare the body of the church wich standeth next the strete very well, and yet have rowme sufficient for a great man." This application of Dr. London met with success in opposition to a request of his brother-commissioner, Richard Pollard, who in a letter dated "Oxon. ultimo Auguste," had thus written to Cromwell:—"A frynde of myne, the warden of the grey friers in Reading, hath also desyred me to be an humble sutar for hym and his brothren, that they may, with your lordeschippes favor, also chainge ther garments with ther papistical manner of livinge. The most part of them be very agede men and be not of

‡ Cotton. Library. Vespasian, E. F. fo. 55,

strength to go much abrode for their livinge, wherfor ther desyre ys that yt myt please yr lordschippe to be a mediator unto the king's grace for them, and that they myght during ther lyves enjoy ther chambres and orcharde, and they would assuredly pray unto almyetie godde long to p's've the king's gr., and yr lordschippe to his most blessed pleasur." The king, in the 31st year of his reign, granted to "Robert Stanshame, one of the grooms of his chambre, and to his heirs and assigns for ever, the whole house and the site of the house of the Friers Minors, commonly called Grey friers, in Readyng, in the county of Berks, the whole burial place, houses, buildings, orchards, gardens, lands, tenements, trees, woods, lakes, vineyards, with all and singular the appurtenances thereunto belonging, and also the site, extent, and precinct walls and ditches of the aforesd house of the friers minors, late so called, being round about and adjoining to the same, and the site and precinct of the house, including and containing in the whole by estimation six acres." The body and side aisles of the church were granted by Henry VIIIth, by letters patent bearing date at Westminster, the 24th day of April, in the 34th year of his reign, 1543, "to the then mayer and burgesses of the borough of Reading and their successors in future," with liberty "to have, possess, use, and enjoy a competent and sufficient way to the said body and side isles of the late church aforesaid, rendering and paying yearly on the feast of St. Michael, the Archangel, the hundredths part of one knight's fee, and one farthing into the revenue of the late augmentation court of the crown for all services, levies, or demands whatever to the intent that the mayor and burgesses of Reading aforesaid might, at at their own proper costs thereof make and build, or cause to be made and built out of the same, one sufficient house there, commonly called the Guildhall." This grant is confirmed by Queen Elizabeth's charter, with authority to the mayor, burgesses, and their successors, "to give, grant, alienate, convey in fee, exchange, or yield up the aforesaid body and side aisles of the said late church, and the way aforesaid belonging to the same to any person or persons whatever, or to convert, alter, and dispose of them to any other use." Some part of the building was probably converted into a Town-hall, and another part was made an hospital, or workhouse for the reception of children and old persons.

It is now used as a house of correction for the town.

We cannot avoid repeating Mr. Billing's suggestion, that the building should be restored as a church, the more so, because accommodation in this respect is much needed by the town.

We shall shortly put before our readers some notes on other buildings in Reading, the results of a recent ramble there.

HISTORICAL ART AND FRESCO PAINTING

Sir,—You have taken a pretty considerable liberty with me, for you have actually chopped off my head and clapped on another that does not belong to me; at least, it is so that you have treated my name, making it begin with an *R* instead of a *B;* you must therefore now *B-head*, and then it will be right. And pray is not *Budownik* a name honest and good enough for you? methinks it might be, since it is nothing more nor less than that of your journal, viz. The Builder, only a little *polished* up by being dressed *à la mode de Pologne*.

By your treatment of my poor head you have nearly put out of it what I had intended to say—*n'importe*—I have pen in hand and must say something, any thing, so that it be not about railroads and shares. That awful epidemic of the day,

"When infants learn to lisp 'bout railway trains,"

I leave to others. But besides that, there is another mania which we are now endeavouring to rear up to the state of full-grown popularity. I mean that for historical art and fresco painting. Your correspondent B.'s scheme for perambulating exhibitions of cartoons, is, no doubt, a mighty pretty one, and might answer very well for a few seasons; yet what would be the consequence even supposing the requisite talent were to come forth at bidding? if after going so for a while in such preparatory exercise, both artists and the public were afterwards to discover, that further and permanent employment could not be furnished for the followers of fresco? What buildings, either public or private, have we at present that are at all calculated to admit of fresco painting on a grand scale? Are there half a dozen mansions in all London, is there a single one among our political club-houses, suitable for the display of such decoration? There is, indeed, the Hall of Commerce, in Threadneedle-street; yet whether Mr. Moxhay would allow any of our *frescanti* to exercise their pencils upon its walls, may be questioned. Sir Robert Smirke, too, has taken especial good care, that they shall not think of contaminating with their brushes the purity of his own architecture, under the pretence of adorning the façade of the British Museum with "storied" compartments in fresco, as at the Berlin Museum, since he has made his colonnades far too shallow for shelter, and further, cut up the surface of the walls behind the columns with windows, though he might so have planned his building as to have no occasion for any at all in that front.

If we are ever to have edifices adorned with frescos, we must rear the buildings themselves first. Or is it, after all, only a miniature sort of fresco painting that is contemplated for us? works on no larger scale than what would be suitable for panels in superior-sized drawing rooms. Were such to be the case, fresco would not rise at all above the level of mere decorative painting; neither would such mode of embellishment at all be relished by our professional decorators, who find their account better in a constant succession of new fashions for rooms. Unless they were owners as well as occupiers, few even of the opulent would care to adorn the walls of their residences with works of sterling art, so circumstanced as to be incapable of being removed from one habitation to another. And as to mediocrity, mere namby-pamby figure-painting in fresco, neither taste nor art would be benefitted by our adopting it instead of fancy paper or silk hangings. Large historical subjects in fresco are fit only for exceedingly spacious apartments, and they should be unfurnished ones or nearly so, and not intended to be occupied as permanent sitting-rooms.

As to the beneficial influence likely to be exerted upon public morals by the cultivation of high art amongst us, I must confess that I am exceedingly sceptical upon that point. Was Italy a pattern-land to all countries for morality during the palmy days of art? History certainly does not favour any such a notion. On the contrary, the love of art has almost invariably tolerated a very great deal that is repugnant to correct moral feeling, and sometimes to decency. And though the more exceptionable productions of art, may not be injurious to those who can separate art from the impurity mixed up with it, the public are not yet arrived at that stage of exalted mental refinement which is requisite for such *innocence*.

Do, too, what we may, high historical art is not to be secured by any forcing process. Unless it is to be no more than an exotic hot-house plant in this country, it must have time to grow up naturally, and that will be work not of a few years, but of generations. It is true a beginning must be made, and the present period may seem a tolerably propitious one; but it is idle to talk as if, so we be but resolute, the desired consummation cannot fail of immediately following the mere beginning.

Now that I have scribbled thus far, I recollect one matter connected with the subject of architectural publication, touched upon in my first epistolary communication. It is probably supposed that the British Museum is well stocked with architectural literature,—that there, if no where else, almost every work of any note or merit at all, foreign as well as English, in that department of study may be consulted. This is so very far from being the case, that that department is most shamefully defective,—I do not mean as regards scarce books of the kind—some of which, by the bye, are quite worthless, except as curiosities, but such as are procurable. I have sometimes made out a list of a score, or thereabouts, and on going to the museum, have not been able to find even one of them. To give you merely one instance, and if you are not already aware of the fact, you may be inclined to set me down for "a liar of the first magnitude,"—though the mile-long shelves of the British Museum, our national repository of literature, groan with loads of the veriest trash that ever issued from the press, it does *not* contain a work—an English one too—that made some noise in its day, and which was of no small influence in the regions of fashion and taste;—it does *not* contain—but no, you won't believe it, I don't believe it myself—I can't believe either the catalogues or the museum people, when they assure me that their library does *not* contain Thomas Hope's publication on "Household Furniture," a work of exquisite taste, and *chef d'œuvre* of outline engraving. Alas! poor British Museum! verily, thy condition is literally *Hope-less!*

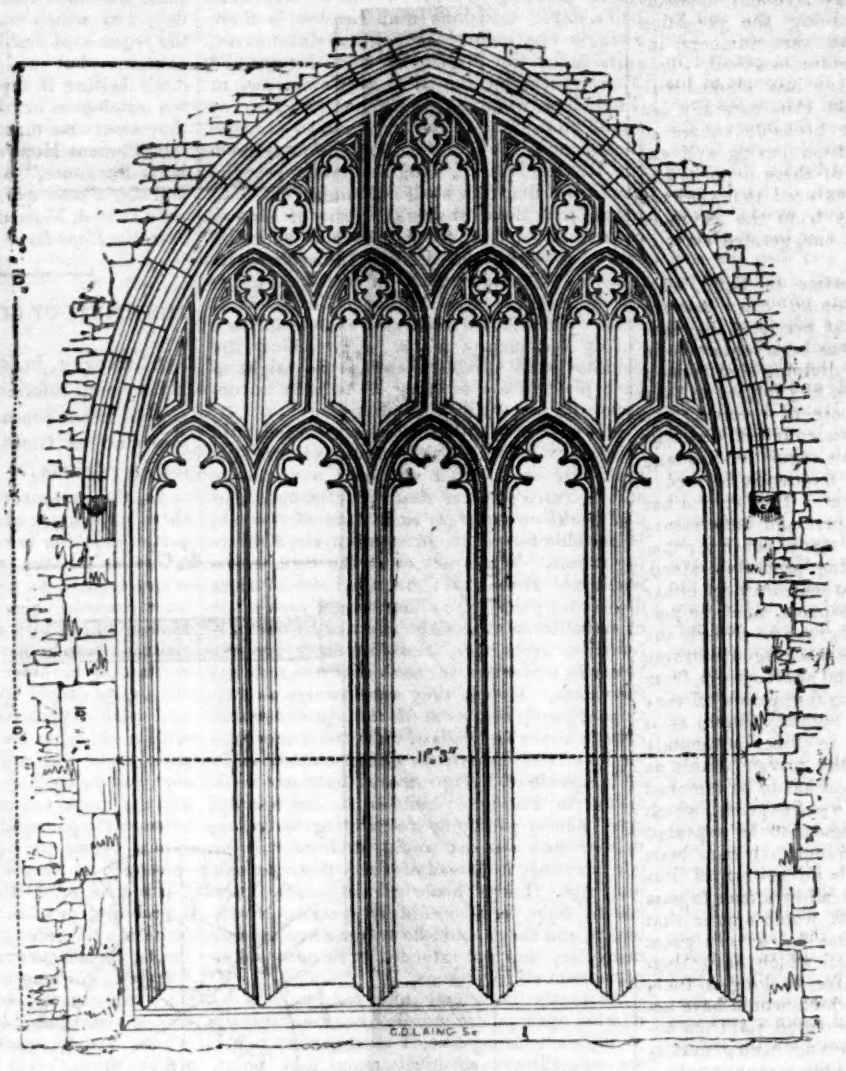
Budownik.

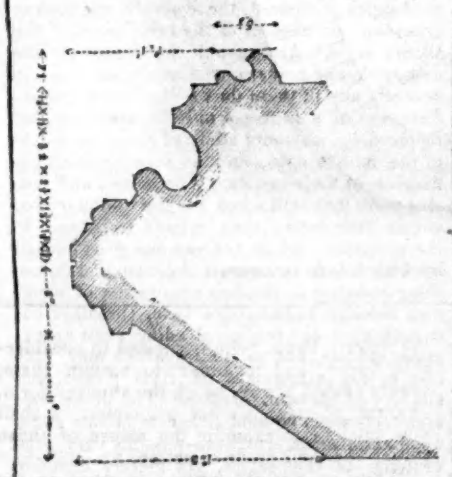
THE STUDY OF GOTHIC ARCHITECTURE.

A writer in the last number of the *Athenæum*, referring to the question lately mooted in our journal, as to the present exclusive study of Gothic architecture, has the following remarks:—

In the present rage for Gothic churches there is too much of *ecclesiolatry*—of a maudlin sort of devotion towards the buildings themselves as edifices mystically sanctified, and which require to be mystically planned, in as strict accordance as may be with the religious fancies of our forefathers. Now if this imitative folly is to be persevered in, then instead of attempting to revive defunct architectural mysticism, we should study the general character and spirit of the style itself, whereas in modern Gothic churches we seldom obtain more than poor, tame, flat copies of good originals, and our modern Gothic architects are in general all the more prosaic in proportion as they attempt the poetry of the art. They have got into a wrong, perverse and unnatural course, inasmuch as they strive to substitute re-production for production, and pique themselves on fidelity, or what they take to be fidelity of imitation; which unlucky ambition may render them clever mimics, but never great performers. So long as they imitate, their works must remain not only in the rear of, but also at a considerable distance behind models whose artistic excellence arises in a great degree from the geniality of treatment which they display; whereas in imitations there is always something forced and artificial; and though individual parts may be all and each according to precedent, the *ensemble* will betray ignorance or neglect of the real idiom of the Gothic style. And such is too frequently the case with our modern mediæval churches: in scarcely any of them do we discover the manifestations of a taste not only formed upon, but inspired by, a sincere study of the great works of the middle ages, and an intelligent apprehension of their merits. The barren and passive taste that will serve for the antiquary becomes little better than artistic impotence in the architect; while the one can give himself up with a sort of busy indolence and do-nothing industry to implicit admiration of whatever belongs to the olden time, the other has to look upon the mediæval edifices not as express models, but as studies which may help him to the attainment of rival power and mastery of his own. Instead of so doing, our architects seem content either to hobble along upon antiquarian crutches—possibly very good crutches in themselves, yet merely crutches after all. In art, antiquarianism is like fire,—a good servant but a bad master; and unluckily, as we think, for architecture, antiquarianism seems just now to be arrogating to itself a control over it—certainly the ecclesiologists display a degree of enthusiasm, and of policy also, that contrasts very forcibly with the apathy of the architectural profession, who seem nearly deficient in that generous attachment to their art for its own sake, which would impel them to consult its best interests by encouraging the study of it. The opposite course of policy has been adopted by antiquaries and ecclesiologists, and so far with success that it has given them a *status* in the literary and artistical world. Not only have they formed a public for themselves, and diffused a taste for studies hitherto regarded as either very trifling or very dull, but they anxiously minister to and cherish that taste.

PERPENDICULAR WINDOW AT BIRCHINGTON CHURCH.





Plan of Jamb.

PERPENDICULAR WINDOW FROM BIRCHINGTON CHURCH, THANET.

This church (which is dedicated to All Saints) contains little worthy of notice with the exception of the perpendicular windows, which are of good design. The best of these, the east window of the chancel, is the subject of the present illustration and by far the finest window in the church: the mouldings are better than those in many windows of even greater pretensions. The illustration consists of an exterior elevation of the window, with an enlarged plan of the jamb.

SUGGESTIONS FOR THE IMPROVEMENT OF SEWERS.

BY JOHN PHILLIPS.*

Previous to the commencement of the present century many miles of sewers, which are designated old in contradistinction to those which have been built since, were constructed with wide horizontal bottoms formed of bricks laid flat, or on edge, with thick upright side-walls and semicircular arched crowns; and both the materials and the workmanship are of the worst possible description, and they are in a state of great dilapidation. Nearly the whole of these sewers, however, were put in at a time when the authorities did not exert much if any influence over their arrangement and construction, and when the subject was not considered to be of such paramount importance to the public as it is now held to be. Moreover, when these sewers were built, a system of good and efficient drainage and sewerage, based upon sound principles of science, seems not to have been understood or practised, consequently many miles in length have been put in without the least attention being paid to placing them in a proper position at their outfalls, or reference being had to their extension to the more distant parts of the districts. Indeed, it is manifest that many of them have been placed in the ground merely for the purpose of suiting their own immediate localities requiring to be drained; and even then (from their form being the worst that could possibly be devised), not with a view to providing good and proper facilities for assisting the discharge of the drainage and sewage carried into them from the surface and premises contiguous; besides they have been built so carelessly and irregularly, that the falls in many instances are arranged contrary to their discharge. The extraordinary large size and improper form of these old sewers are the cause of much of the great evil which still exists, for nearly the whole of them retain the matter discharged into them instead of affording means for carrying it off, consequently they are a vast system of stagnant cesspools, and a great pest, nuisance, and expense to the inhabitants.

Although some improvement has taken place in the formation of sewers during the last thirty years, still many miles have been constructed, both as to arrangement and form, nearly, if not quite as bad as the old flat-bottomed sewers themselves, for vast numbers of those that are termed new are actually in the same abominably filthy condition as the old ones. The inverts of the form which superseded the old are curved, yet from these curves being exceedingly flat, the very diminutive and slender streams become spread over their surface, and therefore have not sufficient velocity or power to lift up and carry off the matter: consequently, these hollow channels very soon become filled with soil, the flat surface of which as it accumulates, forms the artificial beds for the water to run or lie on.

Regurgitations, eddies, and retardations are caused in all streams which flow or strike into each other, where collateral channels are formed at right angles to recipients, and this irregularity produces considerable deposits of heavy matter and silt at those parts. Whenever the channels of sewers are formed in this manner, the deposits which will accumulate from the improper arrangement entirely destroy their efficiency, and that too for some distance on the up stream sides, according to the height of the accumulations, and the inclinations of the channels. Nearly all the old sewers, *as also house drains*, are connected with each other at right angles or nearly so, and indeed so are many sewers which are com-

See p. 475 *ante*.

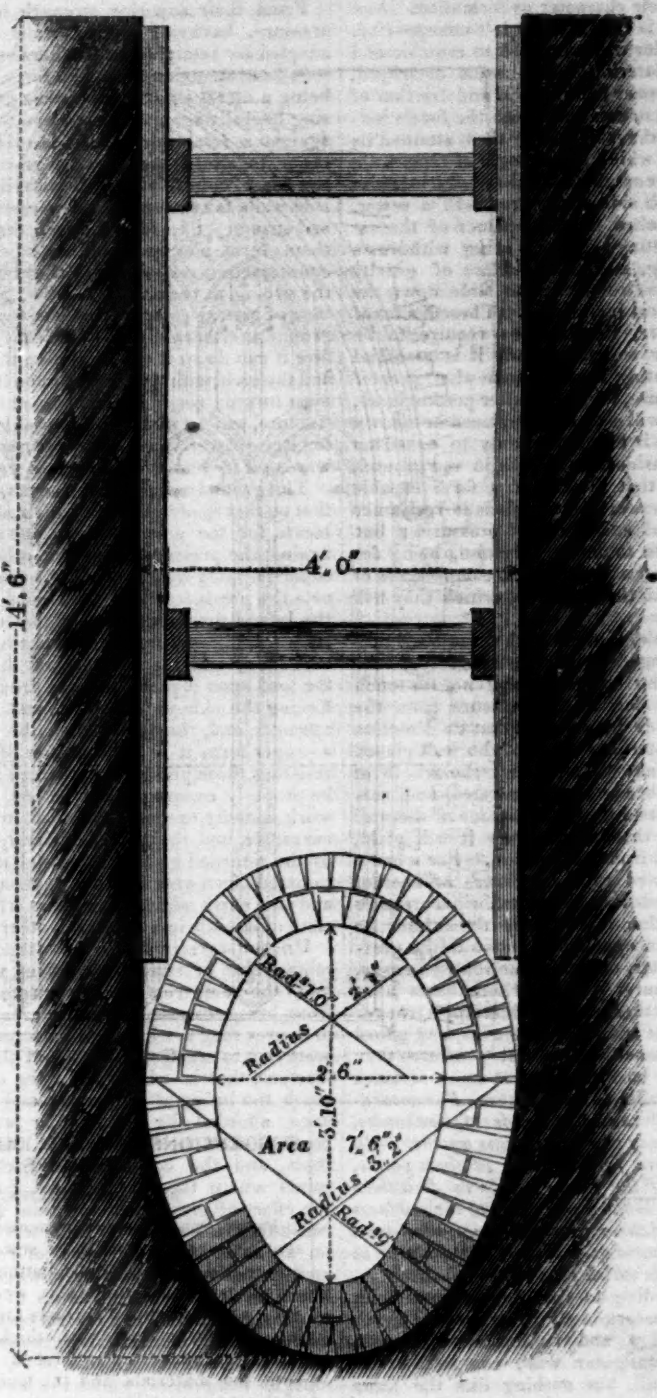
paratively of modern construction; it has, however, been the practice during the last few years, to form the junctions with easts, and in some instances with curves, both being in a direction in accordance with the flow of the streams. From the very frequent opportunities I have of examining the condition of sewers, I have found vast numbers, indeed I may say, as before observed, whole districts of them more or less choked with decomposed matter, and this naturally led me to inquire into the probable causes of their inefficiency; and from having well examined into the causes of these deposits and accumulations, I am convinced that they are produced almost entirely from the improper form, arrangement, and exaggerated sizes of the sewers.

It has been the practice to build what are termed first and second class sewers; and it would appear that precisely the same size and form of sewer has been laid down in numberless instances for draining short streets containing from twenty to fifty houses as have been built for the purpose of receiving the whole of the drainage from collateral districts. The great absurdity of this regulation has long been apparent and has frequently formed a proper cause of complaint. This system has been the cause, by the great and unnecessary expense, of preventing many densely populated localities from being properly drained, many persons being led to seek drainage either surreptitiously or by cesspools, and the permeability of the adjacent ground. Nearly the whole of the water which is discharged into these disproportionately large and short sewers, from the number of drains being few, passes off very slowly, leaving the soil behind, which, as it accumulates from time to time, ultimately stops up the sewer and the private drains as well; consequently the soil has to be removed from them at great trouble and expense; which process has again and again to be repeated as they become choked up. It has been a regulation never to build sewers of less size than is sufficient to allow a man to pass freely along them; and it would appear that this has been the cause in a very great degree of the large sizes which have been adopted and continued for so long a time, consequently the form which would have accelerated the flow and prevented soil from accumulating within them, has not been generally adopted. Now, by judicious arrangements, a proper size can always be retained for that purpose, and, at the same time, the form and width of the inverts may be enlarged or contracted suitable to any exigency or discharge of water and sewage that may be required for any particular locality.

Much controversy has arisen at various times respecting the best and proper transverse form for a sewer, and several forms, both rectangular, elliptical, and circular, with sometimes portions of these shapes blended together, have been suggested and used accordingly. But it would seem that the main question as regards strength and efficiency for discharging the sewage, has been by many persons, either misunderstood or entirely overlooked. Now it must be manifest to all that sewers should be arranged and constructed so as to facilitate the rapid passage of the soil to their outlets, it should therefore always be a question, whenever a sewer is required to be put in, whether its arrangement of size, form, and fall, is calculated to impart sufficient velocity and scouring action to the water so as to carry off or prevent the soil from becoming deposited upon its bed. Now, if the data for the proper size, form, and fall for a sewer be not ascertained, and these properly proportioned to the volume of water likely to find its way into it, the chances are that the force of the stream, from being extended, will not be sufficient to remove the soil, consequently it will accumulate, and the sewer will ultimately become choked, and close up each house-drain.

Economy combined with the utmost efficiency are the principal considerations which should be observed in the formation of sewers; and it is remarkable that the best form that can possibly be adopted is not only the most economical and durable, but is also the most efficacious in carrying off the sewage matter. Besides it combines in its formation the greatest strength with the least consumption of material, and is at the same time strictly conformable to both static and hydraulic prin-

IMPROVED FORM OF SEWERS.



The dark portion of the brickwork to be in cement.

ciples. I strongly recommend for adoption the annexed section for sewers, being persuaded from a strict examination of the principles of such structures, that it combines in its form great strength and power of resisting vertical and lateral pressure, economy of labour and materials, and facilities for ensuring good, sound, and durable workmanship; but above all, and which is of the utmost importance, it affords great advantage to the velocity and scouring action of water, even when its quantity may be small; and without which advantages no structure of this nature can be effectual for the purpose of carrying off the drainage and sewage. Although this shape is an approximation to the form of sewer now in use in the Holborn and Finsbury divisions, still I believe it is rather better calculated to sustain pressures from the ground, and to impart greater velocity and inciting force to a given body of water; for the frictional surface of its invert is less, consequently the hydraulic mean depth of the water would be greater than is afforded by that form; and, according to the principles of hydraulics, the velocity and power to scour increases in proportion to the square root of the height of the water. From being subjected to considerable forces, and in order to sustain them, sewers should always be of the annexed form, or arranged upon similar principles. I shall now proceed to examine the nature of those forces and their mode of action.

When an upright cutting is made in the ground, the adjacent earth at the sides is dependent for its stability upon the nature of the soil and the power of cohesion which binds the aggregated particles to each other, as also on the dip or natural inclination which each succeeding underlying joint and stratum take with the horizon. The particles of ground from the surface downward differ more or less in their relative sizes and shapes, and are upborne and supported by those which lie directly underneath and contiguous to them, consequently their pressures are diffused in lateral, oblique, and perpendicular directions. Now, the lateral pressure which was afforded by the ground in the trench to that at the sides before it was excavated, becomes entirely destroyed, and if the tenacity or cohesive power which connects the particles together be not equal to the lateral force acting *from* them, the masses will break and crumble

away, or slide down into the cutting, and the static line or slope formed by the fracture varies with the strata, and according to the nature and cohesion of the particles of earth; for all soils will stand at some angle or inclination peculiar to their character or formation. And when ground is cut into and left unsupported, that at the sides will not cease to crumble and slip until the lateral forces become destroyed, or until the power of cohesion and friction of the ground be in equilibrio with the forces acting upon it, the soil having then attained its natural slope, which is the angle of repose.

The earth contained within the triangular prisms on each side of the trench of a sewer, becomes detached in consequence of the natural or re-acting support being withdrawn by the cutting, and by the force of gravity each prism has a tendency to slide down the planes of natural inclination. These bodies of earth, therefore, in all cases require to be supported, for which purpose it is essential that the resisting force be somewhat greater than the pressure, for if the latter predominate, the structure will either be displaced or thrown down. From it being necessary to construct sewers at considerable depths in the ground, it is essential that they be of a form capable of offering a powerful and efficient resistance to both lateral and vertical pressures; but these are liable to much variation, being dependant upon the nature and compactness of the earth, and the angles at which they will stand.

It is desirable, therefore, that the walls of a sewer be arranged so that the lines of pressure fall within their substance, and not to touch the intrados; for if the pressure from the ground at a side be so great that its direction touches the interior surface of the wall placed against it at any point, nearly the whole of such pressure becomes concentrated, and acts at that point, and if the resistance of the wall be not greater than the pressure it will yield, and be forced from its position. For when a body is subjected to the pressure of another body, the conditions of equilibrium require that the reaction afforded by the former be equal and in an opposite direction to the pressure of the latter, otherwise motion will ensue.

Reclining curved walls, whose bases abut against each other, are considerably stronger for the bottoms and sides of sewers, and afford greater resistance to lateral pressure than walls that are built upright, at some distance apart, and parallel to each other. *For according to the well known principle of mechanics, that when a body at rest sustains another body by one or more forces acting at given points, the re-action of the forces will be in directions perpendicular to those points, or to the surfaces of contact, and these perpendiculars must meet either at the centre of gravity of that body, or in the vertical line which passes through it.*

Now, according to the foregoing principle, it is easily ascertained, by trigonometry or the composition and resolution of forces, that the rectangular wall, compared with the curved wall, has nothing like the same resisting power to counteract the pressure from the ground, consequently it would be overturned or slide off its bed where the other would remain uninjured. Hence the necessity for adopting the curved form for the side walls of sewers in order to ensure strength, durability, and adequate resistance to lateral pressure. And where ground is of a clayey or slippery character the greatest pressures arise from that adjacent to the sides, therefore it is at those parts the greatest resistances should be placed, otherwise the walls must of necessity give way and be forced off their seats into the sewer. The quick curved form of the ground itself under the invert and sides, assists very considerably in preventing that above from becoming displaced, and when the ground is liable to slip, this form keeps the line of fracture of the ground much higher, or causes the force from it to act where the sewer has the greatest power of resistance, namely, across its broadest part, or where there is most curve; and the inclination of the ground, as also the side walls, should be as obtuse as possible, as then these are better able to resist the lateral pressure. The greater external periphery of curved walls prevents them from being fractured by the pressure of the ground acting against them; for as the radiating joints form an angle with the horizon, when lateral pressure is so great that the wall is liable to be displaced, that portion of it above the line of fracture must be lifted upwards off its bed, while a rectangular wall, under the same pressure, would be forced forwards.

From their superior strength in resisting pressure, battering curved walls are always adopted for retaining walls where stability and sound construction is sought for. And there being a direct similarity between ground pressing laterally against a sewer and that pressing against a retaining wall, it is evident that in order to afford the greatest resistance with the least consumption of materials, curved side walls for sewers are of necessity the best and strongest; besides, the arch thrown across them form abutments which afford forcible counteracting resistances to the pressures from the ground at the sides. Another great advantage of battering curved walls is, that when the ground at either side has a tendency to slip, before it can do so it must upheave the side wall and the arch, with the ground upon it, the whole mass turning round like a hinge at the point of fracture, while a rectangular, or slightly battering straight wall would collapse or be forced forwards off its seat with much less pressure.

The ground adjacent to sewers, as well as that on the top of them, forms their *natural abutments*, for the pressure from one side re-acts against the pressure from the other, and the super-imposed weight on the crown counteracts the pressures from both sides, and thus the lateral pressures prevent that on the arch from forcing *it downwards*, and the side walls *outwards;* and the pressure of the arch and the load upon it prevents those from the sides forcing the side walls *inwards* and the crown *upwards*, and, therefore, when the sewer is of a proper form it is then capable of effectually resisting those pressures; provided the ground be properly excavated for the bed, the brickwork soundly executed and built to the proper curvature, and the walls efficiently protected by the returned ground being well and soundly rammed down around them, as then the sewers and the earth adjacent to them will be in a state of equilibrium with each other.

Under scarcely any circumstances should rectangular or straight battering walls enter into the construction of sewers, because, from being exposed to very great external pressures they are liable to be forced off their seats and to crack or collapse at the points of fracture, that is where the lines of pressure touch the inside of the sewer; and the resistance afforded by rectangular walls is dependent upon their own weight, the load upon them, and the cohesion and friction of the joints where the pressures act, consequently the effect of pressure at any point would be to cause the walls either to slide or turn round on an axis; and their power of resistance is merely that of *extension* only, whereas curvilinear brick walls are made up of a series of wedges, which tend to a central point, and contain outside the neutral axis a greater amount of material than there is inside of it, and which must be *compressed*, whilst the lesser quantity of material inside the neutral axis must be *rent asunder or extended* before the walls can give way, that is when the external pressure is equal at every part. Therefore the curved form not only affords greater resistance but bears transverse strains much better than rectangular walls, and consequently are better adapted to support earth, and that too with much less quantity of material because the perimeter of a circular wall is much less and contains within its circumference a greater area than that of any polygonal or rectangular figure. It would add much to the strength and durability of sewers were radiating bricks used in their construction instead of rectangular bricks, as bond could then be produced which would tie the walls together transversely much better than is done with half-brick rings and heading courses, when these can be got in. The expense of making and burning this description of brick would not be more than 3s. or 4s. per thousand above the cost of common rectangular bricks, and were a large order given, the cost probably would not be more than 2s. 6d.

The crown of a sewer with the weight of the superimposed ground, together form a great connecting link to the stability of the side walls, by enabling them from the increased weight thrown on them to sustain with greater security the ground at the sides. The weight of the ground on the arch is almost always sufficient to prevent the pressure at the sides from upheaving or disturbing it; but when the arch is too flat the pressure upon it will force the side walls outwards *if these be not properly protected.* And again, if the arch rise too much, the lateral pressure will cause it to collapse at the sides or springings, and it will crack and rise upwards at top, but the pressure upon the arch is almost always sufficient to prevent this from occurring. A semicircular crown for a sewer appears to be a mean between that which is too flat and that which is too high. But the semicircle is not the best form for supporting vertical pressure, for it has a considerable tendency, when the ground is not sufficiently firm or compact, to sink at the top and rise or spread at the haunches; and I have noticed that a great many arches of sewers of a semicircular form have gone exactly in this manner. Under these circumstances, therefore, I think it is desirable to make the arch or crown of a sewer somewhat of an elliptical shape, with the longer axis upwards or approaching to the form of the equilibrated arch, as then the lines of pressure from its weight and the load upon it, are distributed more equably within its substance, and the resistance that this pressure affords is then thrown where it is mostly required, namely, across its broadest part; besides, by giving the arch this form, an opportunity is afforded for making the side walls more obtuse and of greater curvature, which greatly improve their power of resistance.

It is considered that a form of sewer which is suitable for one locality is not adapted for another. This principle holds good only where ground differs considerably in its character; and attention need not be paid to it except on extraordinary occasions. Greater width and lateral resistance is needed where ground is very soft, clayey, or of a slippery nature, when it is desirable to conform to the shape of the circle; for a cylindric ring under every condition is the strongest form for resisting transverse pressure when it is equally divided around it. But the circle, although it is the strongest, is not the best and most efficient form for a sewer, as other conditions besides strength are connected with the subject; for the whole object of sewerage is to effect in a speedy manner the discharge of the drainage. Whatever may be the character of ground through which a sewer has to pass, its form should never depart from the principle of the arch whose properties should be the genises on which to design every hollow structure that is to have pressure acting around it.

In performing the practical operations of sewer work, it is essential that great pains should be bestowed upon the excavation of their bottoms. For in order that the brickwork of the invert may be constructed to the proper curvature, it is extremely desirable that the bed of the sewer should be brought as near to the form of its outer periphery, and as correct as it is practicable to make it.

The discharge of drainage and sewage is wholly dependant upon the velocity, inciting force and energy of flowing water, which must in all cases have sufficient power to overcome the inertia or force of gravitation of the sewage matter, as also to sweep and carry it forward in mechanical suspension. Now the greatest amount of velocity and impelling force to which a descending stream, with a given inclination, can attain, depends on the least width of the development of the surface of contact; it is therefore of the greatest importance always to make the channels of sewers of a shape conformable to that which produces the utmost velocity and the least amount of friction or rubbing surface for the water to flow in. I shall hereafter proceed to examine the forms, arrangement, and construction of sewers with reference to this all-important point.

THE WROUGHT NAIL TRADE.—The workmen of this trade, upwards of 15,000, made a stand last week for an advance of 10 per cent. upon their wages. Messrs. Caddick, of Coseley, at once told their workmen they would give it to them, and that they must not stand a single hour. Messrs. Caddick paid them the advance on Saturday last, and stated they hoped in a short time to be able to give a further advance.

EFFLUVIA FROM SEWERS.

Sir,—Despite the importance of the subject, I fear you must begin to nauseate the very name of, much less the effluvia from, sewers. I can only hope the old proverb vulgarly condemning too much stirring, will be reversed as regards our present subject; and as a proof thereof, I would fain hope some one of the Metropolitan Sewers Commission will at once take up the subject of sewer purification—and test the value or otherwise of the various propositions which have recently been put forth. With respect to the plan proposed in your number for the 4th instant, I cannot believe that any apparatus with gratings in connection with the carriage-way would be found to answer the purpose practically; and as respects the *modus operandi* of the machinery itself, I confess that, to my mind, the scheme lacks practicability, or, at least, a more lucid explanation, and I must still think that the air-flues or columns, with whomsoever the idea originated, are infinitely better calculated to ensure a permanently satisfactory result. And while on this point, without wishing to detract from "Mr. J. P.," or "Mr. J. L.," I would just observe, and it appears to have been overlooked by the writers on these matters, that there seem to be no good reasons (especially if a draft be created in their favour) why these outlets for the gases should be confined to the site of the sewer itself, when branch pipes or drains might conduct them to any available spaces, such as court-yards (for which a rental might be paid), the blank sides of houses situated at corners of streets, public mews, and the like situations.

Before dismissing the subject of sewers, I would hazard a few remarks on a point which I believe has in some measure escaped our rather too zealous reformers. "J. L." tells us not to fear the bursting as resulting from the pent-up gases, and assures us that this results rather from bad engineering and defective workmanship. Both these defects may exist in our sewers; but, verily, I believe, this tune has been harped upon too loudly, and to a certain extent, unfairly (perhaps because the tune is popular); and we should bear in mind that when explosion takes place, no work (or material), be it of the most cyclopean character, can altogether resist its force. I am at the same time free to admit that due attention should be given to the *shape* of the sewers; and there can be no doubt that the less straight work be admitted into their form the better will they be enabled to resist pressure. I think, however, that many of the complaints would not be heard of if greater care where taken in *building* the sewers; such as doing the work *in its place,* instead of on a bench in the street, and paying due attention to the perfect bonding of the work, using hoop-iron pretty freely, and above all, giving the green work something like a chance of setting, before either the contractor or the director of the works, proceeded to overwhelm it with the earth covering and backing. This earth backing should, in my opinion, be most carefully filled in and rammed, unless concrete, which would be much more efficient, were substituted for it.—I am, Sir, &c., Συνεργος.

Oct. 14th, 1845.

Furniture Woods.—The Lords Commissioners of her Majesty's Treasury have recently ordered that a parcel of partridge wood imported from Antigua be admitted free of duty as furniture wood. Their lordships have also ordered that a parcel of cherry wood recently imported from New Orleans be admitted duty free. These decisions, which are of very considerable importance to the importers of and dealers in wood used in the manufacture of furniture, have been communicated to the revenue officers at the various outports throughout the United Kingdom for their information and government with respect to future importations of these articles.

Tableaux Vivans.—Herr Keller with a number of models, male and female, is exhibiting at the gallery of Painters in Water-colours, Pall Mall East, a series of living pictures of extraordinary beauty. We advise all artists to see them; effects of light and shade are produced which will give them hints of no mean value. Keller is evidently an artist himself and sets his figures with a power rarely seen.

AMENDMENT OF METROPOLITAN BUILDINGS ACT.

Sir,—The announcement in your paper of last week, the 11th instant, headed "The Official Referees," must, I think, be gratifying to the building world; inasmuch as you state that it is intended to bring in a bill, early next session, to *amend* the Act,—that a third referee will be appointed, and that Mr. Higgins has consented to resume his office *pro tem.*

The necessity for an amendment of the present Act is more than generally admitted, and I trust a less vexatious, inquisitorial, and "Paul Pry" law will be enacted.

The original purpose of a Building Act was simply the prevention of extension of fire, and the framers of it may do well to bear in mind the legal adage, "*de minimis non curat Lex,*" and not legislate on trifles, or interfere beyond what a wholesome care for the public weal requires, so that a man really cannot do what he likes with his own.

That a third referee is desirable, will, I dare say, be admitted, when we consider that two persons very frequently and fairly, differ in opinion; and a third person is required to decide. And as one of the understood advantages of the new Act was, that building matters would be referred to, and decided on, by persons professing that art, namely, surveyors, and not magistrates or lawyers, the necessity of calling in the registrar, who at present seems prominent, will not be required. The official forms, notices, and fees, may possibly also be abridged and lessened; they are now multifarious and heavy, pressing hard on the building public and all connected with the Act; who appear to have exchanged the rule of King Log for that of King Cormorant. At the same time it must be admitted, by the modifications that have in several instances been made, a right spirit seems to prevail.

That Mr. Higgins remains is, I think, gratifying, for a man more practically conversant with the subject, or fit for the duty, can hardly be found. He is not one of the mere Bureaucracy or martinet school, and his plain good sense and freedom from crotchets may tend to render the administration of the Act more practicable and less vexatious.

He is also well known, and has so little official hauteur—"*Procul hinc! procul este, profani*"—that his continuance in office will probably be hailed with satisfaction by all whom it may concern.

To whom, Mr. Editor, and yourself, these observations are respectfully submitted, by your obedient servant, C.

October 13, 1845.

ON THE HISTORY OF STAINED GLASS.

At the archæological meeting before mentioned, a paper by Mr. Winston, on the painted glass in Winchester Cathedral and other local buildings, was read. The writer remarked that the design and execution of glass paintings are as capable of convenient classification as architectural peculiarities, and that he should refer throughout to the three great mediæval styles of glass painting, by the terms Early English, Decorated, and Perpendicular, each style being nearly contemporaneous with the several styles of architecture as designated by Rickman. The term *Cinquecento* he should apply to any glass prior to 1540, which exhibits in its details the peculiar style of ornament known by that name. The earliest specimens of English glass that he had met with at Winchester, are the two fragments probably of a border, worked in with other glass, in the west window of the nave of St. Cross, and two other fragments of a border over the door leading into the refectory. All this glass is of precisely the same character; and to be referred, he was of opinion, to the beginning of the thirteenth century. A few small fragments of *later* Early English are at present contained in the cloister of the college. Two circles of Early Decorated glass are over the door of the refectory of St. Cross, and two or three more in the west window of the Cathedral. They are composed of plain pieces of coloured glass, disposed in a geometrical pattern, and prove how much of the *effect* of early glass is owing to the *texture* of the material. He would add here, that it appears to have been the practice formerly to glaze the windows according to the progress of the work. Thus at York, the decorated glass in the aisles is earlier than that in the west window of the nave; and the Perpendicular glass in the aisles of the choir is earlier than that in the great east window. All the present glass in the side windows of the College Chapel is modern, as well as that in the east, with the trifling exception of two small figures, the head of an angel, and four other little bits of glass in the tracery of the window. Considering the time when the glass in the east window was executed, it must be admitted to be a very good copy of the old. The art of making coloured glass was not so well understood then as now. Had the glass been copied now, it would only have been one degree better than it is. Its effect would still have been that of painted glass, exhibiting the drawing of the early part of the fifteenth century, and the colouring of the nineteenth instead of that of the sixteenth. The *texture* of all modern manufactured glass, *uncoloured* as well as *coloured*, is identical only with that of the sixteenth century, and is totally different from the texture of earlier glass. The principle of adapting the execution to the material pervades all ancient, and indeed all original manufactured work, and it is vain to imitate the drawing without also imitating the material in which the work is to be executed. Hence it is that modern encaustic tiles, whatever may be the date of the pattern impressed upon them, always appear to be of the date of the manufacture of the tile. The east window of the college library is of the time of Edward IV., and was moved to its present position from the south side of the college chapel. The arms in the refectory of St. Cross are of the latter part of the fifteenth century. Those of Cardinal Beaufort are uncommonly fine. The glass in the east window of the cathedral choir is perhaps a little earlier than 1525, and is the work of Bishop Fox, whose arms and motto, "*Est Deo gracia,*" are introduced into it. This window must have been a magnificent one; but it is unfair to judge of it in its present state, when so little of the glass occupies its old position in the window. The top central light is filled with glass of Wykeham's time, and all the rest of the window with glass of Fox's time. In point of execution he apprehended the painted glass in this window was about as perfect as glass could well be. The library at the deanery contains some excellent specimens of heraldic glass of the time of James I., and Charles I., in which, however, the decline of the art of glass painting is very apparent.

FOREIGN ARCHITECTURAL AND COLLATERAL INTELLIGENCE.

Schinkel's Works.—The writings and designs of this *great* defunct architect (member of the Council of State of Prussia), are now publishing in a form worthy of his great genius. They are as follows:—1. Collection of all architectural plans and projections of Schinkel. (*Sammlung architektonischer Entwürfe.*) It consists of one hundred and forty-nine plates, which, in the *cheap* edition, cost about 10*l.* Supplement thereto, twenty-six plates with text, about 3*l.* But this is still surpassed by a really splendid work entitled—2. Works of high architecture—planned and designed for execution. (*Werke der höhern Baukunst.*) The *first* portion of the work contains—Plan of a palace for the Acropolis of Athens. Ten plates of the largest size compose this portion of Schinkel's work. The *second* portion contains—Plan for the Imperial Palace of Orianda in the Crimmea, with fifteen plates of equal size.—No library of any public institution ought to be without these works.

The Scientific Congress at Naples is progressing well. Persons of the highest rank (dukes and such like) vie in rendering every assistance and service, a thing quite unusual with the hitherto Italian *grandezza.* On the 28th ult. took place the festival inauguration of the meteorological observatory on Mount Vesuvius—one of the most *original* institutions in the known world. The next will be the inauguration of the colossal statue of *Religion* (!!) on the new Campo santo at Poggio Reale.

On the 2nd Oct. the men of science will be gratified by the unusual sight of two excavations, which will be made at different places at Pompeii. Of the memoirs read we cannot state, at present, more than that, that of Pro-

fessor *Thiersch*, of Munich, on a MS. codex found at Bamberg, contains the conclusion of Pliny's natural history, hitherto considered lost.

Undermining of Streets at Paris.—Subterraneous Structures.—About a year ago, the district of Montmartre was thrown in great consternation, as on its east side several buildings seemed more or less menaced by a sinking of the ground. It was asserted, that the slope of the hill of Montmartre had been undermined by the works for quarrying stones, which are carried on to a great extent in and about the French metropolis. The affair became so serious, that the Préfet de la Seine, assisted by the chief engineer of mines (!) the chief inspector of quarries (!!) went on the spot to inquire what was to be done. The inquiry, however, shewed that the sinking of the soil was ascribable to the unsystematic quarrying carried on at a previous period. Still, several proprietors received orders to execute immediately some works for staying the damage done. During this and other similar inquiries, the actual state of the *Catacombs* (this subterranean Paris) has been ascertained, the details of which are very curious. The greatest length of these excavations, counting from their entrance at the Barrière d'Enfer, is one kilometer (two miles.) But from this main line branch off a great many other shafts and quarries; and extend under a large portion of Paris. Some of these works are 5 or even 600 years old, and for ventilating them pits are pierced into the open air. This quarrying is now (very properly) under the *surveillance* of Government, and no quarry can be abandoned, without proper measures being taken for the safety of the superincumbent earth. In places where there are no houses, the quarry is sunk into itself, if we may say so, by the supporting pillars being cut off, when the roof falls down, and then only the soil thus disturbed is smoothed and planned. If houses exist above, then, of course, the pillars are to be strengthened. The budget of the city of Paris bears every year a sum of 100,000 francs for these works of *consolidation*. This applies only to quarries, which lie underneath public roads; but if any sinking of soil is to be apprehended on the spot where houses are built, then the proprietors must bear the expense. To find one's way in these galleries, is rather difficult now, although they bear the names corresponding to the streets, and numbers similar to those of the houses above. But their is now a plan in preparation which is expected to be completed in about two years, which will faithfully represent all the ramifications and *ganglia* of the huge network of *subterraneous Paris.—Gazette des Tribunaux.*

Street-cleanliness; Regulations at Paris.—Although we know full well, that to lay down regulations and to have them *observed*, are very different things—still, we believe, that the following notification, issued at the beginning of the present month, by the Préfet de Police of the French capital, will shew what attention is paid to these matters by the French authorities. The *Ordonnance* begins by stating, that the sweeping of the public thoroughfares has to take place from the 1st of October to 31st of March—between seven and eight A.M., and at no other time. The footways are to be scraped, swept, and washed; and the conduits to be kept free from all impediment for the efflux of water, &c. After some other points of usual purport—the Paris authorities say: "For the sake of reforming the habits so contrary to cleanliness and decency, the administration has authorised or caused the construction of urinals in several public thoroughfares, especially on the Place de la Concorde, the Boulevards, and many of the Quays."

Public Recognition at Berlin.—On the retirement of the actual privy councillor, *Beuth*, the professors and teachers of both the institutions, which owe him their creation, at least vigorous re-organization—viz., the general building school (*allgemeine Bau-Schule*), and the industrial (artisans) institution, have resolved on presenting to that worthy statesman and man a token of their respect and love.

Ancient Canal and Tunnel of the river Kuran, in Persia (*Susiana*).—The design of those stupendous hydraulic works,—derived from Oriental authors and a minute personal observation by Major *Rawlinson* (as contained in one of his communications to the Royal Geographical Society), seems to have been the following. It would appear that Andeshir Bábegán, or his son, excavated a deep and wide canal to the east of the city of Shuster, and thus divided the waters of the river. The artificial stream was derived from the Kuran immediately above the town; but the city, situated on rising ground, between the two arms, could have been but indifferently supplied with water, and a further undertaking, therefore, was necessary to remedy this evil. A massive band or dyke, accordingly, was thrown across the original bed of the river, at the distance of about half a mile from the mouth of the canal, narrow outlets or sluices being left for the passage of a certain portion of the water. The consequence of this was, that the great body of the river was forced back into the artificial derivation. Another band was then thrown across the mouth of the canal, forming, as it were, a continuation of the line of the original bank, and raised precisely to the same height as the lower dyke. Here, too, the passage of the water was regulated by sluices; and the entire bed of the stream being now formed, as it were, into a vast reservoir, the mouth of a tunnel was opened into it (!), which had been excavated directly through the hill of sand-work forming the left bank of the river, between the two bands, and below (!) the level of the water thus artificially elevated. A copious stream, of course, immediately ran into the tunnel, and sufficient water was thus obtained for the supply of the town and the cultivation of a vast tract of country. Before either of the bands, however, were undertaken, and when the whole body of the river must have flowed in the artificial canal, the mouth of which had probably been deepened for that purpose, that part of the original bed between the two dykes which was intended to form the great reservoir was paved throughout with massive hewn stones, fastened with metal clamps, to prevent the further deepening of the river, and to give additional strength and security to the whole work.* Such was this great work in its original conception. But as the course of the river has constantly changed, as either of the dykes became impaired and yielded a free passage to the water, the level of water in the great reservoir must, in that case, have fallen below the orifice of the tunnel, and thus, of course, it has become entirely useless.

* Such of our readers as may study these matters, have to observe that Major Rawlinson says, that the courses of the river and canal are *reversed* in the otherwise accurate map of Kinneir.

CAUTION TO WORKMEN.

A journeyman copper-smith, named Evans, was summoned before Mr. Hardwick, Marlborough-street, for breach of contract with his employer, Mr. Styles, copper-smith, Lisle-street, Leicester-square. Mr. Styles proved that the defendant entered into a written contract to engage himself for six months at the wages of 23s. weekly. The defendant came to work two or three days, and then left him entirely. The nephew of the complainant proved that he was the means of procuring the defendant employment at his uncle's place of business. He had met the defendant accidentally one morning; the defendant had applied to him to get him a job, alleging that he had left his situation at Messrs. Pontifex's on account of disagreement about money matters. He had taken the defendant to his uncle's shop, and the defendant had obtained an engagement at advanced wages. Mr. Pontifex said the defendant had some time previously engaged himself to him for some months. He had been at work at his shop, and had only gone away for a periodical "fuddle," which generally lasted a week, and it was while on his drunken ramblings that he had been apprehended by Mr. Styles.

Mr. Pontifex said the railroads made the trade so busy, that it was of importance not to lose the services of even one man. He hoped the defendant would be obliged to fulfil his original engagement. Mr. Styles said he had no vindictive feeling towards the man, who was otherwise a good workman, and, when not drawn away by liquor, a steady man. But it was important to teach journeymen that they must not, after having engaged themselves to an employer for a stated time, leave their work and upset business with impunity.

Mr. Hardwick said the plea of intoxication, even had it been established, would not have excused the defendant's reprehensible conduct in forming engagements and breaking them at his pleasure. In order to teach him that he must not enter into engagements and break them capriciously, to the great injury of employers, he (Mr. Hardwick) would send him to prison for one month. The solicitor said Mr. Styles would of course pay the man his wages all the time he was in prison. Mr Styles said he would do whatever the magistrate required. Mr. Hardwick looked over the Act, and came to the determination, instead of directing Mr. Styles to pay a proportionate amount of the wages, of cancelling the contract altogether. The defendant was then committed to hard labour for a month.

Correspondence.

BUILDERS' TENDERS.

Sir,—I beg to submit to you the following tenders which were opened on Saturday morning, the 11th inst. at the architect's, Mr. Isaac Bird, 72, Seymour-place, Bryanstone-square; they are for alterations at the White Hart, Walworth-road, for Mr. Wm. Williams; the difference is surprising in so small an amount, especially when you consider that the plate-glass will cost 50*l.*

Cooper and Davis	£225
Cooper	198
Ashby	197
Lawrence	188
Whitaker	138

You see the difference between highest and lowest is 87*l.* and the *accepted*, as he intends doing the job, is 50*l.* under the next lowest.

Would it not pay builders generally, to employ competent persons to make out their estimates rather than guess at their amounts?

Oct. 13. A Contractor.

The following letter on the same subject is almost beyond belief: we have, however, received the same figures from four different quarters, so that we cannot doubt their correctness.

Sir,—I take the liberty to forward you the amounts of tenders delivered for finishing ten houses at Mile-end: Mr. Single, architect.

Croast	£1,477
Knight	1,305
Smith	1,250
Rivett	1,194
Johnson	1,192
Simmons	1,150
Cooper	1,129
Hughes	1,124
Cliff	1,060
Keeth	1,060
Symons	1,050
Hume	905
Reed	847
Hawkins	595
Westbrook	589

The tenders were opened in a private room. Mr. Westbrook was called, and, fortunately for him, he was not present; Mr. Hawkins was then called, and told his tender was accepted, leaving him to guess whether he was 3*l.* the lowest or 300*l.*; the other tenders were then returned to the several contractors, who, like men of business, opened them amongst themselves. So much for competition.—I remain yours, &c. W.

ORNAMENTAL PLASTERING.

Sir,—In reply to your correspondent, on this subject, he is referred to a work "Practical Masonry, Bricklaying and Plastering, both plain and ornamental," published by Mr. Thomas Kelly, Paternoster-row, London.

The letter-press and drawings for the plastering portion, were supplied by one of the practical stucco workers engaged at Windsor Castle, and therefore can be relied on, the information having been obtained from an experience of several years.

Your correspondent will find, under the head of "materials used for internal finishings," in the work alluded to, the information he required regarding a good composition to work foliage in by hand.—I am, Sir, &c.,

Frank Tyrrell.

Newcastle-upon-Tyne, 10th Oct. 1845.

[Advertisement.]

TO THE EDITOR OF THE BUILDER.

32, Kirby-st., Hatton-garden, 15th Oct. 1845.

SIR,—Being fully aware of the interest you take in every invention that appertains to the advancement of science, and particularly at a time when your columns are strongly advocating a pure and efficient system of ventilation, it may probably not be considered too intruding my soliciting you and your readers' attention, to a newly invented and patented Stove. My practical experience in the formation and superintendence of public and private gas works, as well as fire places and flues, combined with ventilation, wherein a strict attention to the generation of caloric, its distribution, &c., has applied to heating and its various purposes, warrants me in a great measure to state my opinion, that Mr. Allen's stove for public and domestic purposes excels every other I have seen, or I believe has hitherto been produced. I am convinced, that it only requires to be inspected, to be properly appreciated; it may be seen, with all its various ramifications, at the patentee's residence, 21, Worship-street, Finsbury-square, at any time, but in operation from two to four o'clock daily.—I remain, Sir, &c.,

S. H. BROOKS,
Author of "Cottage and Villa Architecture."

Miscellanea.

EXPERIMENT WITH FIRE-RESISTING TIMBER.—On Monday week, Mr. James B. Reay, of Dublin, the inventor of a preparation for rendering timber, to a great extent, fire-proof, tested the experiment at the Commercial Hall, Gloucester-street, in the presence of the Mayor, Mr. D. Hodgson, Mr. H. Booth, Messrs. Milner and Son, and other gentlemen. Two piles of timber, the one consisting of pitch pine, which had undergone the process of preparation, and the other consisting of memel which was unprepared, were elevated in the form of the rafters of a house. Shavings were placed underneath, and fire was communicated. In a few moments the memel was in flames, and very speedily it was consumed. The pitch pine, which was three several times exposed to the action of 800 degrees of heat, stood the test admirably. Some of the timbers were more or less charred, but very little injury was effected; and a remarkable part of the experiment was, that the prepared timber upon which the lighted shavings were placed was very slightly damaged by the fire. The mayor, and other gentlemen present, expressed themselves satisfied with the experiment so far as it had gone.—*Liverpool Times.*

FREEMASONS OF THE CHURCH.—Oct. 14th, Mr. J. W. Archer in the chair; Mr. John Soane was elected a vice-president; Mr. W. G. Whitehead, of Paris, was elected a correspondent delineator for that city; and Mr. S. C. Hall, F.S.A., was elected a member. Mr. Archer presented a rubbing from a brass executed by him, and placed in the church at Wargrave, near Reading, by the officers of the Enniskillen Dragoons, to the memory of their late commander, Lieut. Col. Raymand White. Mr. W. H. Rogers then delivered a discourse on illuminated books, wherein the history of illuminating manuscripts was both theoretically and practically treated of, and giving a preference to the East for its origin; Mr. S. Woodburn exhibited a small and delicate missal of the fifteenth century, with gold borders; Messrs. Hunt and Co., of Bond-street, a French MS. of the fifteenth century; Mr. G. Isaacs contributed an extraordinary reliquary, called a "Rota," of the thirteenth century; The Rev. H. Crowe, Vicar of Buckingham, contributed a psalter of the twelfth century, and Mr. Leake a curious printed book of the fifteenth century, being one of the ancient choral books of Salisbury Cathedral. Capt. V. Anson laid upon the table two Egyptian deities, taken at the siege of Amoz in 1842; and Mr. W. Barton exhibited an engraved book of prayers of the seventeenth century. The next lecture was announced for the second Tuesday in November, being a continuation of the same subject.

OPENING OF THE NEW HALL, LINCOLN'S-INN.—It is understood that her Majesty has fixed the 30th inst. to open the New Hall, Lincoln's-inn, at 2 o'clock p.m.

CITY OF WESTMINSTER LITERARY, SCIENTIFIC, AND MECHANICS' INSTITUTION.—The general meeting of this institution was held on Wednesday evening, when the chair was taken by Wm. Page Wood, Esq. (Queen's Counsel), vice-president. It appeared from the committee's report, that much attention had been given to the evening classes, as offering peculiar advantages to the mechanic, and that these comprised several especially adapted to his wants; as those for writing and arithmetic, geometry and its practical applications, and architectural, and ornamental, and general drawing. A very interesting series of lectures was announced for delivery during the quarter. A discussion ensued as to various proposals for reducing or liquidating the balance of the debt incurred for the erection of the premises, and a committee was appointed to examine and report on their several merits. Thanks were voted to the chairman, and the meeting adjourned.

IMPORTANT USE OF INDIA-RUBBER.—At an inquiry held in Galway a few days ago, by Captain Washington, the Tidal Harbour Commissioner, one of the Town Harbour Local Commissioners stated that the Board of Works had been allowed 100*l.* for India-rubber, to *keep out the tide* when the docks were undergoing repair.

FOR RAILWAY INTELLIGENCE, &c. SEE SUPPLEMENT.

NOTICES OF CONTRACTS.

[We are compelled by the interference of the Stamp Office to omit the names of the parties to whom tenders, &c., are to be addressed. For the convenience of our readers, however, they are entered in a book, and may be seen on application at the office of "The Builder," 2, York-street, Covent-garden.]

For the execution of two contracts on the Manchester, South Junction, and Altringham railway, being respectively of the lengths, 1¼ mile and 7¾ miles, including a viaduct of 1,000 yards in length.

For the execution of the entire works (with the exception of Rails and Chairs) of the Cockermouth and Workington railway, being about 10 miles in length.

For supplying her Majesty's Dockyards with Lift Pumps, for pumping water out of ships' holds.

For supplying the London Dock Company with Bent Wood Hoops for the year ensuing.

For the execution of Works on the East Lancashire Railway, being the Burnley contract.

For the supply of 90,000 Sleepers either Larch or Baltic Timber; also of 380,000 lineal yards of Larch Railing, and about 28,000 Larch Posts, to the East Lancashire Railway Company.

For the supply of Railway Sleepers conformable to specification, to the Liverpool and Bury railway.

For supplying the London and Birmingham Railway Company with twenty Passenger and ten Goods' Engines of the greatest power that may advantageously be employed, being not less than 1,000 square feet evaporating surface.

For the execution of the Works on the Hull and Selby railway, between Hull and Driffield, being a distance of about 19 miles.

TO CORRESPONDENTS.

"C. J." *may safely construct the external wall to a fourth-rate in the manner he proposes.*

"W. R. A." (Durham.)—*Messrs. Whittaker and Co., of Ave Maria Lane, London.*

"A Sub." (Nottingham.)—*Bruff's work on Engineering Field-work, published by Simpkin and Marshall.*

"J. M."—*The reply would depend on the terms of Messrs. Bunnett and Corpe's specification. We are disposed to think it would be an infringement.*

"Observator's" *letter in no way contradicts the remarks on the dreadful state of the sewers, which have appeared in our pages.*

"Plans on Parchment."—*A correspondent wishes to know the best way of colouring plans on parchment? What are the best colours to use? and what liquid is best for mixing the same? We have our own way, but shall be glad to receive the opinions of others.*

"R. C."—*Caen stone is used externally in the restorations at Canterbury Cathedral, Westminster Abbey, &c. In quality it is very various, containing vents and faults hardly discoverable 'till opened. It is a good stone, but must be selected with care: few people in England know much about it. We will shortly seek an opportunity to speak more at length.*

"S. H." (Paris.)—*We shall be happy to receive specimen and terms.*

"G. P." (Nottingham.)—*The design is not sufficiently good for publication. The classic lyre and wreath are out of place on a gothic monument. We are much obliged to "G. P." nevertheless.*

"W. S." (Keighley.)—*There is no new work on staircases. Michael Angelo Nicholson's book, on this subject, published ten or twelve years ago is scarce, but may sometimes be met with.*

"Q."—*The request did not reach us till it was too late to comply. We have altered the signature.*

"W. W." *will find a work on Railway Surveying recommended above. We should advise him to understand the subject before he accepts an engagement.*

"Quebec."—*A correspondent says* 1,000 *hands are wanted for works at Quebec, and wishes to know who has the engaging of them.*

"O."—*If the specifications be also made, an architect of standing would charge two-and-a-half per cent. The question is an unsettled one: previous arrangement would be the best course.*

"J. S."—*If the projections be in accordance with the Buildings Act, our correspondent may rest satisfied. The latter supersedes local Acts.*

"G. R. L." "Ballantine and Allan."—*Next week.*

Other correspondents must excuse us till our next number.

ADVERTISEMENTS.

ROYAL POLYTECHNIC INSTITUTION, REGENT-STREET.

KITE'S PATENTED VENTILATING and SMOKE-CURING SYSTEM is daily explained by Mr. Phillips, the practical engineer, illustrated by models and a great variety of experiments, at a Quarter past Twelve and Half-past Seven precisely. Architects, Builders, Ironmongers, Gas Fitters, and the Public generally, are invited to investigate the merits of this new and scientific invention, the application of which may be seen in practical operation as applied to street lamps, at the entrance of the above Institution. All letters addressed to the Patentee, New North-road-bridge, Hoxton.

ROYAL POLYTECHNIC INSTITUTION.—Lectures on the Music of Spain, by Don Jose de Ciebra, with Guitar and Vocal Illustrations, on Tuesdays, Thursdays, and Saturdays, at Half-past Two o'clock. Dr. Ryan's Lecture on the Process for making Ice by Artificial Means, illustrated by Masters' Patent Apparatus, Daily, at Half-past Three o'clock. Also, Mons. Boutigny's experiment of making Ice in a Red-hot Crucible. Professor Bachhoffner's varied Lectures, with experiments, in one of which he clearly explains the principle of the Atmospheric Railway, a model of which is at work Daily. Coleman's New American Locomotive Engine, for ascending and descending Inclined Planes. A magnificent Collection of Models of Tropical Fruits. A new and very beautiful series of Dissolving Views, new Optical Instruments, &c. Experiments with the Diver and Diving Bell, &c., &c.—Admission, One Shilling; Schools, half-price.

BIELEFELD'S PAPIER MACHE.—The superiority of the Papier Mâché for the purposes of ARCHITECTURAL DECORATIONS is now so generally admitted, that it is needless to argue it. The introduction of Papier Mâché into most of the public and private buildings in the country is the best proof of its merits. Ornaments may be had in almost every style, and pattern-books, containing more than a thousand executed designs. Price 1*l.*

PICTURE FRAMES and other Articles of Furniture, either gilt or in imitation of the finest carved oak. An illustrated Tariff forwarded on the receipt of eight post-office stamps.

PATENT QUAQUAVERSAL GLASS-STANDS for the toilet, on an entirely new principle, of great elegance, and free from all the practical inconvenience of ordinary Glass-stands.

At the works, 15, Wellington-street North, Strand.

WALLIS'S PATENT LIQUID WOOD KNOTTING.—This newly-discovered Liquid Composition which Messrs. Geo. and Thos. Wallis have the satisfaction of introducing to the trade, possesses the important qualification of effectually stopping Knots in Wood, however bad, and preventing them eating through and disfiguring the paint above.

Many substances have been used and much time spent in endeavouring to find a cure for a bad Knot, but hitherto without success. Messrs. Wallis therefore feel much pleasure in offering to the public an article so long and anxiously called for.

In the application, skill is not required; a boy can use it as well and effectually as the best workmen: it is put on to the work with a brush like common paint, can be used in all climates and situations, and does not require heat.

Sold wholesale and retail, by Messrs. G. and T. Wallis, Varnish, Japan, and Colour Manufacturers, No. 64, Long Acre. Price 20*s.* per gallon.

VARNISH.—It has long been a desideratum amongst the consumers of Varnish to obtain a good and genuine article; brilliancy, facility of drying, hardness, and durability are the qualifications necessary, but these are seldom if ever found united. The experience of a life-time devoted exclusively to the manufacture of this article, the great and important discoveries of modern chemistry, and the daily improvements in machinery, have enabled Messrs. George and Thomas Wallis to produce Varnishes (both oil and spirit) unrivalled in every respect, and they confidently recommend them to the trade, as deserving of notice both in price and quality.

Builders, Coachmakers, Painters, and others may depend on being supplied with a genuine and unadulterated article. Fine Oil Varnish, from 10*s.* per gallon; best White Spirit Varnish, 21*s.* ditto; Best Spirit French Polish, 20*s.* ditto; White Lead, Oil, Turps, and Colours of every description at the very lowest prices.—WALLIS'S Varnish, Japan, and Colour Manufactory, 64, Long-acre, one door from Bow-street. Established 1750.

TO ARCHITECTS, BUILDERS, UPHOLDERS, BLIND MAKERS, &c.

E. SMITH, MANUFACTURER, 8, AVERY ROW, BOND STREET.—The Registered Archimedian Blind Roller possesses important advantages, such as the following:—It resembles closer than any other the spring in its rapid ascent, and short pull of cord, being only a quarter the length of blind, the tassel being retained in the hand during the entire ascent of a long blind, not liable, as the spring, to be deranged by want of care in using; much cheaper, and capable of application where the spring is not, as in long narrow windows. Parties will be waited on with models, by communicating the wish by post, or can see them at the Polytechnic Institution, and Adelaide Gallery.

Ends for wooden roller, complete 4s.
Tin tube . . . . 5d. per foot extra.

Orders by post, with measure between beads and length of window, will be executed, and sent to any part of the kingdom.

GRAINING COLOURS AND LIQUID WOOD STAINS.

HENRY STEPHENS begs to call the attention of Architects, Builders, House Decorators, Painters, Cabinet-makers, and all those engaged in the erection of churches where the appearance of oak is desirable, and those also who are employed in the revival of old carvings, faded furniture, or other ornamental wood work, to his GRAINING COLOURS and LIQUID WOOD STAINS.

The graining colours are prepared in a damp state, and upon so true a principle, that the workman cannot fail in obtaining the natural colour, nor of giving to the work the same effect and appearance at all times. The difficulty of producing a true colour and of preserving the same uniformity with the admixture of earths and oxides, which are the ingredients used in graining, has long been acknowledged. This difficulty is at once removed by these preparations, and the grainer is enabled to confine his attention to his art in graining, without being perplexed in proportioning and mixing his colour.

The LIQUID STAINS are solutions of colours which not only carry additional stain on to the various woods on which they are employed, but when used on the particular wood whose object it is to revive, it combines with and heightens the natural colour inherent in the wood, and is therefore a valuable acquisition to the DECORATOR and to the RENOVATOR of old oak or other carvings. They are also capable of giving colour to the sappy and defective parts of veneers and fine woods used by cabinet-makers and others.

In the decoration of churches, castles, baronial halls, and mansions, in which are often found beautiful specimens of ancient carvings; when the colour of the wood is changed and faded, these liquid stains will be found particularly serviceable.

They also impart to woods of inferior character and of soft texture, such as beach, birch, pine, deal, &c., the colour and appearance of such woods (whether oak, mahogany, rosewood, &c.) as it may be designed to imitate, and thus save the expense of more costly materials.

The above preparations for graining and staining for purposes of imitation and of revival, are prepared by HENRY STEPHENS, and may be obtained at 54, Stamford-street, where specimens of their application may be seen, and also at the Office of "The Builder."

HOLBORN AND FINSBURY SEWERS, MIDDLESEX.

THE COMMISSIONERS of SEWERS for the LIMITS give NOTICE, that their Office, Hatton Garden, is open daily between the hours of Ten and Four, where information can be obtained (gratis) by persons about to Purchase or Rent Houses or Property, or take Land for Building purposes, of the situation and level of the public Sewers, capable of affording sufficient Drainage, and which they recommend all such Persons to apply for at the above Office.

By the Court,
STABLE and LUSH, Clerks.

COURT OF SEWERS FOR WESTMINSTER, AND PART OF MIDDLESEX, No. 1, Greek-street, Soho-square.

TO BUILDERS and Others interested in buildings or in ground for building upon, within the district under the jurisdiction of this Court, drained by watercourses falling into the river Thames, between the city of London and the parish of Fulham.

The Commissioners hereby give notice, that by an Act of the 47th Geo. III. (chap. 7, local) it is required that, previously to the making of any new sewer in any street, lane, or public way, or in any part intended to become a street, ane, or public way, or to carry or drain off water from any house, building, yard, or ground, into any sewer under their management, or within their jurisdiction, a notice in writing shall be given to them, or to their clerk at their office, and that such new sewer or sewers shall be constructed and made in such manner and form as shall be directed by the said Commissioners, and not otherwise.

And, in order to prevent the serious evils and inconveniences that must arise from ground proposed to be built upon being excavated at too great a depth, the Commissioners have directed that, upon application being made at this office previously to the excavation of such ground, information shall be given as to the lowest depth at which the same can be drained.

And the Commissioners do also give notice that, whenever the lower floors or pavements of buildings shall have been laid so low as not to admit of their being drained with a proper current, they will not allow any sewers, or drains into sewers, to be made for the service of such buildings.

It is recommended to all persons about to purchase or take houses, or other premises, to ascertain whether such premises have separate and distinct drains into common sewers.

All petitions must be delivered at this office at least three clear days before they are presented to the Commissioners; and all such petitions will be called on in the order of their application, and the name of any party not present when called on to support the application will be struck out, and the proceedings must in consequence be commenced de novo.

All communications made with any sewer without leave of the Commissioners will be cut off, and the parties making the same will subject themselves to a fine.

The provisions of the Metropolitan Buildings Act (7 and 8 Victoria, c. 84) do not supersede the authority of the Commissioners of Sewers in the above respects, but their powers are expressly reserved, and their regulations made subservient to the purposes of that Act. The execution of such works, under the superintendence of the district surveyor alone, cannot therefore warrant the making of any sewers or drains within this commission, nor relieve the parties making them from the penalties above mentioned.

By order of the Court,
LEWIS C. HERTSLET, Clerk.

PORTLAND CEMENT of best quality manufactured by J. B. WHITE and SONS, of Millbank-street, Westminster. To be had at their Warehouses; Druce's Wharf, Chelsea; Bell's Wharf, Paddington; and Earl-street, Blackfriars.

TO ENGINEERS, ARCHITECTS, AND CONTRACTORS.

GREAVES'S LIAS CEMENT and GROUND BLUE LIAS LIME, at 2, South Wharf, Paddington, London, and Works, Southam, Warwickshire.

Agent for Liverpool, Mr. WYLIE, 56, Gloster-street; ditto for Manchester, Mr. J. THOMPSON, Back King-street; ditto for Chester, Mr. J. HARRISON, Linen Hall-street.

KEENE'S PATENT MARBLE CEMENT.

THE PATENTEES of KEENE'S CEMENT beg to draw attention to the use of this material in the works recently executed at the COLOSSEUM, Regent's-park. The POLISHED COLUMNS in the Hall of Sculpture, the ornamental paving in the corridors and conservatories, and much of the stucco on the walls, are specimens of the very successful application of this cement. Patentees and Manufacturers, J. B. WHITE and SONS, Millbank-street, Westminster.

ATKINSON'S CEMENT.—The public is respectfully informed, that the price of this very excellent Cement, which has now been in use for Architecture and Engineering works upwards of thirty years, is reduced to 2s. 3d. per bushel, and may be had in any quantity at Wyatt, Parker, and Co.'s Wharf, Holland-street, Surrey side of Blackfriars-bridge.

N.B.—This Cement being of a light colour, requires no artificial colouring or painting, and may be used for stucco with three parts its own quantity of sand.

MARTIN'S FIRE-PROOF AND ORNAMENTAL CEMENT.

CAUTION.—Messrs. STEVENS and SON, Patentees, beg to caution their friends and the trade generally against confounding this invaluable Cement with others, erroneously said to be of the same description. S. and S. pledge themselves, that MARTIN'S CEMENT is totally dissimilar in composition and manufacture from every other, and, being a neutral compound, is not only free from chemical agency upon any substance with which it may come in contact, but completely resists the action of the strongest acids. They feel it a duty to direct attention to the following properties, which it exclusively possesses:—

1. It rapidly acquires the hardness of stone.

2. Unlike other internal cements, its hardness is uniform throughout its entire thickness.

3. Its surface (which may be made equal to that of the finest marble) never throws out any salt, and will receive paint in four days, without peeling, when put upon dry work.

It is peculiarly adapted as an internal stucco for walls, skirtings, architraves, mouldings, and enrichments of all kinds, to all of which purposes it has been extensively applied by Mr. Thomas Cubitt on the Grosvenor estate, &c.

For the above purposes, it possesses great advantages over wood, being more economical and durable, resisting fire, damp, and vermin.

For the floors of hall and fire-proof warehouses, its lightness, durability, and uniform surface give it an immense advantage over stone, being, at the same time, much more economical. The most satisfactory references can be given. To be had of the Patentees, Plaster of Paris and Cement Manufacturers, 186, DRURY LANE.

Agent for Liverpool and Manchester, Mr. R. PART, 28, Canning-place, Liverpool.

TO ARCHITECTS, ENGINEERS, CONTRACTORS, BUILDERS, MASONS, AND PLASTERERS, MERCHANTS, SHIPPERS, AND THE PUBLIC IN GENERAL.

JOHNS and CO.'S PATENT STUCCO CEMENT.—The following are the positive advantages possessed by this Invention over every Cement hitherto introduced:—It will effectually resist Damp. It will never vegetate nor turn green, nor otherwise discolour. It will never crack, blister, nor peel off. It will form a complete Stone casing to any Building covered with it. It so closely resembles Stone that it is impossible to detect it. It never requires either to be painted or coloured. It will keep fresh and good in the cask in any Climate for any number of years. It is the only Cement that can be depended upon for export. It is the only Cement that can be used with confidence by the Sea-side. It may be used in the hottest or coldest Climates at any season. It will adhere to any substance, even to Wood, Iron, or Glass. It will carry a larger Proportion of Sand than any other Cement. It matures by age, and becomes perfect when other Cements begin to perish. It may be worked through the Winter, as frost has no effect upon it. It may be used on the Inner Walls of new Houses, which may be papered over or painted directly. Roofs laid or pointed with this Cement will remain undamaged by the severest Storms. Any Plasterer may apply it, the Instructions for use being very clear and distinct. The first cost of this material does not exceed that of the cheapest Cement now in use; but with all the above-named extraordinary and valuable advantages, nothing can approach it in point of economy.

Architects and Builders who have used this Cement have declared that it requires only to be known, to be universally preferred.

Specimens may be seen, and a Prospectus fully describing the Cement and its mode of application, together with a volume of Testimonials from every part of the Kingdom, may be obtained on application to MANN and CO., SOLE AGENTS for the Patentees, 5, Maiden-lane, Queen-street, Cheapside, London: of whom also may be had,

JOHNS and CO.'S PATENT STONE-COLOUR STUCCO PAINT, expressly intended for Painting over exterior Walls of Houses that have been covered with Roman or other Cements, and which have become dirty and discoloured. It is in every way better suited for this purpose than White Lead Paint, which will frequently come off in flakes, being in direct chemical opposition with Cement; whereas MESSRS. JOHNS and CO.'S PATENT PAINT having an affinity for Stucco, binds itself with it, stopping the suction, thereby rendering the wall proof against weather, and in the finish producing a pure stone-like effect, producable by no other Paint whatever. It is cheap in its application,—and may be used by any Painter, in any climate, even in the most exposed Marine situations.

POLONCEAU'S BITUMEN PAVEMENT for paving Footwalks, Terraces, Garden walks, Stables, Coach Houses, Granaries, Corn Stores, and Salt Warehouses. For the exclusion of Damp and Vermin in Basements it is particularly adapted, and for Roofing Dwelling Houses, Porticos, Balconies, and Sheds.

Price 3s. 6d. per square yard.

BITUMEN for covering the Arches of Bridges, Culverts, &c. &c. on Railways and other places (with instructions for laying it down), may be had at the rate of 45s. per ton, by applying to JOHN PILKINGTON, 15, Wharf-road, City-road.

TO ARCHITECTS.

IN consequence of many complaints having been made to the Company, by Architects, of a spurious material having been used in the execution of Works where the SEYSSEL ASPHALTE had been specified for, the Directors, with a view to ensure the fulfilment of any such specification, have authorized CERTIFICATES to be granted to Builders where the

SEYSSEL ASPHALTE

has been used. For the purpose of securing the use of the Genuine Article, Architects and others are recommended to insert in their specifications the "Seyssel Alphalte, Claridge's Patent," and not merely "Asphalte," or "Bitumen," as in many cases where these terms have been used, gas-tar and other worthless and offensive compositions have been introduced.

I. FARRELL, Secretary
Seyssel Asphalte Company.
Stangate, near Westminster Bridge, Jan., 1845.

Books of Instructions for Use may be had at the Office of "The Builder," and of all Booksellers in Town and Country, price 1s.

*** In proof of the necessity of the above advertisement, may be mentioned, that it has come to the knowledge of th Directors, that in certain works which have been executed by Messrs. CURTIS, builders, of Stratford, a spurious material has been used by them, contrary to the specifications, which expressly mentioned, that "Claridge's Asphalte" was to be used.

Also in the case of a work at Lewisham executed by Messrs. ROBERT and DANIEL YOUNG, of 10, Crown-row, Walworth-road, where Seyssel Asphalte was specified for, a spurious article was nevertheless laid down by them.

RAIN WATER PIPES, Heads, Shoes, and Elbows, Half-round and O G Gutters, Sash Weights, Railing Bars, Sink and Stable Traps and Gratings, Air Bricks, Coal Plates, &c.; Gas and Water Pipes from 1½ in. to 12 in. in diameter, with Bends, Branches, Syphons, and Lamp Columns; also Hot-water Pipes, with all the usual connections. A large Stock of the above Castings at JONES'S Iron Bridge Wharf, and No. 5, Bankside, Southwark.

NOVEL PLAN FOR CURING SMOKY ROOMS.

THE SMOKE ELEVATOR, secured to the Advertiser by Act of Parliament, can readily be attached to any old or new pattern room stove, without disfigurement or removal of the stove, at a less cost than any patent chimney pot, and with a certainty of success beyond comparison.—Sold by C. RICKETS, patentee of the calorifere gas stoves, for warming churches, halls, rooms, shops, or any other kind of building, without a chimney.—No. 5, Agar-street, Strand, opposite Charing-cross Hospital.

TO ARCHITECTS, BUILDERS, BRICKMAKERS &c.,

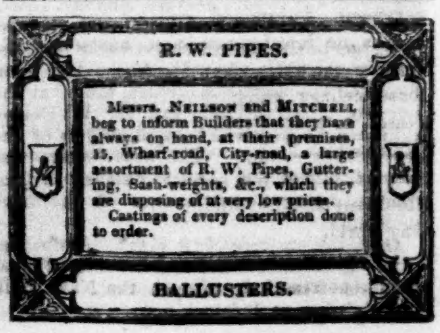
PUMPS of Superior CONSTRUCTION, bored perfectly true by improved machinery, in various plain and ornamental patterns for Conservatories, Squares, Market Places, Roads, Gardens, and for Liquid Manure. BRICKMAKERS' PUMPS, in Wrought and Cast-Iron, HYDRAULIC LIFT PUMPS, and ENGINES for Wells of any depth. SINGLE and DOUBLE PUMPS up to 12-inch bore, kept for Hire.

BENJ. FOWLER, 63, Dorset-street, Fleet-street.

TO ARCHITECTS AND BUILDERS.

DOOR SPRINGS AND HINGES.—GERISH'S PATENT DOOR SPRINGS, for CLOSING every description of DOOR, consists of Single and DOUBLE-ACTION BUTT HINGES in Brass and Iron for Doors to open one or both ways, and Rising Hinges for the convenience of Doors opening on uneven Floors. Likewise Swing Centres, which consist of a combination of power unequalled by any made at present. Manufactured by F. W. Gerish, East-road, City-road; and sold by all respectable Ironmongers in the United Kingdom.

BUNNETT AND CORPE,
ENGINEERS,
26, LOMBARD STREET, LONDON,
AND AT THE WORKS, DEPTFORD,
Patentees and Sole Manufacturers of the
REVOLVING IRON SAFETY SHUTTERS.
METALLIC SASH-BARS, MOULDINGS, ETC., IN BRASS, ZINC, OR COPPER,
FOR
SHOP FRONTS, WINDOWS, SKYLIGHTS, &c.
STALL-BOARD PLATES MADE AND ENGRAVED,
And all kinds of Metal Work executed to any Design.
Estimates given for Patent Iron Shutters, Metallic Shop Fronts, Sashes, &c., Glazed complete, with best Plate Glass, in any part of the kingdom.
METALS ROLLED OR DRAWN FOR THE TRADE.


R. W. PIPES.
Messrs. NEILSON and MITCHELL beg to inform Builders that they have always on hand, at their premises, 15, Wharf-road, City-road, a large assortment of R. W. Pipes, Guttering, Sash-weights, &c., which they are disposing of at very low prices.
Castings of every description done to order.
BALLUSTERS.

The Builder.

SUPPLEMENT, GRATIS.—SATURDAY, OCT. 18, 1845.

RAILWAY HERO-WORSHIP.

"In a commercial country like England," says Mr. D'Israeli, in *Sybil*, "every half century developes some new and vast source of public wealth, which brings into national notice a new and powerful class. A couple of centuries ago, a Turkey merchant was the great creator of wealth; the West Indian planter followed him. In the middle of the last century appeared the nabob. These characters in their zenith in turn merged in the land, and became English aristocrats; while the Levant decaying, the West Indies exhausted, and Hindostan plundered, the breeds died away, and now exist only in our English comedies, from Wycherly and Congreve to Cumberland and Morton. The expenditure of the revolutionary war produced the loanmonger, who succeeded the nabob; and the application of science to industry developed the *manufacturer*, who in turn aspired to be "large-acred," and always will, as long as we have a territorial constitution."

The money-maker of the present day,—a species of the last-named *genus* it may be said,—is the producer of railways and railway shares.

Foremost in this peculiar class of men, who have raised themselves by taking the new field opened for the exercise of energy, shrewdness, and resolution, stands George Hudson, Esq., M.P. for Sunderland, deputy-lieutenant for the county of Durham, owner of several hundred miles of railroad, two fine estates in Yorkshire (one purchased of the Duke of Devonshire, at a price little short of half-a-million), and of so many golden pieces of the current coin of the realm, that he has never yet been able to count them exactly. The progress of this gentleman, from behind the counter of a linen-draper in York to his present eminent position, forms an extraordinary story. We have not much faith in what is called good-fortune, although it is quite certain that events turn out *seemingly*, much better for some men than others, apparently without their control,—and are disposed to give the gentleman in question the credit of having *made* all things succeed in which he embarked, and achieved his own fortune, of course under a Higher power.

With good business habits, a sanguine temperament, determined will (a will which brooks no interference, and has sometimes another name), much shrewdness, and few of those feelings which some people call weaknesses, he at once took the lead in those companies which his passionate desire for speculation led him to join, and at this time reigns absolutely and despotically over the new railway world.

The power of influencing the opinion of others, possessed by Mr. Hudson, affords a striking instance of the *leaning* nature of man, his desire to have a guide,—a hero. The multitude cannot think for themselves, or will not; and are willing to save themselves the trouble by adopting the opinion of one in whom they have faith. To inquire into the merits of a line and decide accordingly, is a more difficult matter than to take up the belief that whatever Mr. A. or Mr. B. enters into must be good and desirable. When Mr. Hudson joins a line the shares rise; his being seen on the site of a proposed railway has an effect on the value of the scrip, and thus the public have vested him with the power of making money without risk or effort. He has but to purchase, at no matter how great a discount, and the next day may sell at a large premium. Companies send deputations, soliciting him to come on the direction, and we hear of enormous grants of shares made to him as an inducement to accede to the request. The career of Law of Lauriston, the projector of the Mississippi scheme, forces itself as a parallel on the recollection. Let us hope Mr. Hudson may never equally abuse the power that public weakness has placed in his hands. At present all goes swimmingly. He is called the Napoleon of railways, the king of railways, the Dictator, Cæsar, and by a dozen other titles, and 18,000*l.* or 19,000*l.* have been subscribed in a very short space of time for a permanent testimony of admiration.

Far is it from our wish to undervalue energy and discrimination wherever exhibited; we cannot, however, avoid contrasting this more than ample demonstration, this piling up of a measure already full,—with the treatment received by men who have, with self-sacrifice, benefitted their fellow-creatures. Mr. Hudson has pushed his trade vigorously and well. We hear of no noble motives, no desire to serve others rather than himself,—he does not pretend to such,—but simply that he has applied himself to carry out schemes in which he had embarked merely to make money, and that he has been successful in his endeavours.

We trust that Mr. Hudson will cause the large amount collected to be applied in a manner that may serve those who need it more than himself, and so indeed render it an honourable testimonial. The foundation and endowment of a series of almshouses for the widows and children of men connected with railways, who may lose their lives in the service of railways, has been suggested, and would seem to be an excellent mode of disposing of the money subscribed.

Hungerford Suspension Bridge.—This bridge has been sold by the proprietors for 226,000*l.*; thus yielding 62*l.* 10*s.* for each share of 25*l.* A deposit of 20,000*l.* is to be paid by the purchasers next week.

RAILWAY TERMINI IN THE CITY.

The reception given by the Court of Common Council to the application from one of the direct London and Manchester Railway Companies, and from the London and Birmingham Company, for leave to purchase respectively the site of Farringdon Market, and the site of the Fleet prison, for termini, leads to the belief that it will not be very long before the inhabitants of the city are enabled to enjoy the advantages of railway travelling without the previous penance in an omnibus, to which they, in common withthe greater part of the other inhabitants of the metropolis, are at present subjected. Mr. Lawrance said justly, that if the corporation of this metropolis did not allow railways to come into the city, and establish their termini there, they would go somewhere else; and he would ask the corporation whether they were prepared to say that railway companies should not establish their termini in the city, when they had an opportunity of obtaining convenient accommodation? Farringdon-market had cost the corporation (as we understood) from 150,000*l.* to 200,000*l.*; and up to the present time, leaving the interest of the money out of the question, they had obtained hardly any return for the investment. A proposal was now made to them to take off their hands this unproductive property, and to render it valuable as the terminus of a railway. The situation, from its central position, was peculiarly valuable for such a purpose; it admitted of very easy access, and there was ample accommodation for carriages to wait, or for carts to load and unload, without interfering with the ordinary traffic of the city. If a railway terminus should be formed in Farringdon-street, he considered that it ought not to be confined exclusively to one company, but that it should be open to all companies; but as all could not join in the commencement of such an undertaking, it was necessary that somebody should begin. He understood that a railway company had recently purchased nearly 80 acres of ground at King's Cross. Now, it could not be supposed that such a large quantity of land was required for the railway terminus; and he might observe, that if they did not act cautiously in the city, towns would spring up around the suburban railway stations which would materially and injuriously affect the trade of the metropolis.

Mr. R. Taylor remarked that, with regard to the question of forming railway termini in towns, that he would much rather travel by railway from Paddington to Bath, than by omnibus from London to Paddington. Everybody who had travelled to Bath by that route must know that the omnibus drive from London to Paddington was the most unpleasant part of the journey. He would remind the Court that large hotels and shops were in the course of erection near the Euston-square station, and other railway stations in the vicinity of town, and that people who came by railway from the country took up their abode at those hotels, and became customers to the neighbouring shopkeepers. He could state, that the inhabitants of Farringdon Without would deem it a Godsend to have a railway terminus at Farringdon-market; for the proprietors of the great inns and hotels in the neighbourhood had regretted that a terminus had not been established in that vicinity at a much earlier period."

The question is one of great importance, and

must have due consideration with reference to the other schemes for accommodating the occupiers of the "little village" and its neighbourhood with means of rapid locomotion. As the *Times* said recently, the dwellers in our suburban villas will not submit to be passed by and over. "A merchant will not consent that Bayswater shall be, according to Time's compasses, twice as far from the city as Croydon. We find that country towns left out of the existing lines are compelled in self-defence to get up lines of their own; nor can we expect that the active Londoner will submit to remain behind the provincial in facilities of transit and traffic."

The *Spectator* considers the introduction of termini will greatly conduce to the improvement of London. "It will relieve the principal streets from huge masses of heavy traffic—exchange for the ponderous and obstructive waggon the flying island or subterranean magic car of the railway train; saving hindrance, noise, and mechanical troubles innumerable. It will introduce handsome edifices. It will break up bad neighbourhoods—as this very terminus at Farringdon-street promises to do, and give opportunity for remodelling whole districts without special cost; the one operation of improvement becoming a mere incident in the other operation of making the railways. It will shake up the ill-contrived framework of the British capital, suggesting and facilitating other improvements, until railway-traversed London will look back with smiling pity on those days when citizens survived who dreaded lest railway *termini* should obstruct trade."

The site of Farringdon-market will probably be the great central terminus for all railways proceeding from the north side of London.

RAILWAY JOTTINGS.

A treaty for the purchase of Northumberland House is going on between its ducal proprietor and the South-Western Railway Company.——The Central terminus, baffled at Hungerford, are negociating for Waterloo Bridge instead.——A Paris paper states that an advantageous offer made by Englishmen to the cities of Bremen and Hanover now occupies much attention. It consists in establishing between those cities, instead of an iron railway, a railway of wood, which will not cost more than one-third of the price of the former, while the expenses of working the line will be also more economical. The locomotives employed on this line will be upon the system of atmospheric pressure, and will proceed, they say, much more rapidly than steam engines. The rails will be of beech wood, and rest upon a solid foundation of asphalte.——The *Banker's Magazine*, for October, says, "we are assured, by those on whose opinion we can rely, that the London tradesmen, and, we dare say, those in the large towns also, are beginning to complain that they cannot obtain the ordinary payments from their customers, in consequence of the pressure on the latter for money to meet their railway calls."——The contemplated sale of the Regent's Canal has stirred up opposition on the part of the wharfingers and others resident on its banks, who have organized a committee to watch the proceedings. It was contended, at a meeting held this week, that much capital had been embarked by landowners and lessees, on the faith of the existence of the canal, and that it would be a violation of rights to stop the water-way. A suggestion was made to file a bill in Chancery. Another meeting is to be held at the York and Albany Tavern, Regent's Park, on Tuesday next.——The *Gazetta Italiana*, a print published at Paris, mentions three decrees which, it alleges, have been recently issued by the Pope. The first prohibits the construction of any description of railroad in the Pontifical dominions.——The Whitehaven and Maryporte Railway lately sustained considerable damage at Micklebam-point, between Lowca and Harrington, from a spring tide, which, assisted by a north-west wind, washed over the embankment. The damage is estimated to be from 600*l.* to 1,000*l.* Several hundred yards of the embankment and a temporary sea walling were swept away, and several waggons, besides trucks and barrows, severely injured. Some of the waggons were found at low water mark, others were imbedded in the mud, and a great number of tools are said to be lost. This part of the line has from the first been deemed by persons acquainted with the locality as an impracticable attempt to control the tide.—— A curious calculation connected with the present advertisement fever was inserted last week in the *Inverness Courier*, by which it appears that the *Herald*, *Chronicle*, and *Times*, are each in the receipt of from 3,000*l.* to 4,000*l.* a week for railway advertisements alone.——A correspondent of the *Times* gives four specimens of ubiquitous railway directors. One is director in *twenty-three* companies; a second in *twenty-two*; a third in *twenty-one*; the fourth in *twenty*. He adds—"We have no right to imagine for one moment that this can be one-half of the undertakings which they patronize as directors; for I have not seen the advertisements of any of the French, German, Irish, nor of one-half of the English and Scotch schemes? What puzzles me is, that allowing that they have nothing else in the world to do, how have they found the secret of being able to attend to even these railways? I fancy that each company must have at least one committee-day per week; so that if an hon. and gallant captain attends those of which he is a director, he must attend very nearly four committees per diem."——An inquiry, which will last a month, has just been opened at the Hotel-de-Ville, Paris, and at the *sous prefectures* of Sceaux and St. Denis, upon the project of establishing a railway round Paris to communicate with all the lines running from the capital.

THE ELECTRIC TELEGRAPH.

At a time when the electric telegraph, which has become a component part of the railway system, is doing wonders and exciting general attention, the following account of an apparatus designed to effect the same end, by means somewhat similar, may not be devoid of interest. It is given by Arthur Young, in his travels in France, more than half a century ago (edit. 1792, v. 1, p. 65). Speaking of Mons. Lomond, "a very ingenious and inventive mechanic," he says, "in electricity he has made a remarkable discovery: you write two or three words on a paper; he takes it with him into a room and turns a machine inclosed in a cylindrical case, at the top of which is an electrometer, a small fine pith ball; a wire connects with a similar cylinder an electrometer in a distant apartment; and his wife, by remarking the corresponding motions of the ball, writes down the words they indicate; from which it appears he has formed an alphabet of motions. As the length of the wire makes no difference in the effect, a correspondence might be carried on at any distance. Whatever the use may be, the invention is beautiful." It is interesting thus to observe the embryo idea, as it were, now it is developed into the adult state of usefulness.

It is only a few years since we saw Professor Wheatstone experimenting and *amusing* himself as was then said, with the transmission of signals by means of electricity; and now the principle is in operation over some hundreds of miles of country. That it will gradually be brought into general use seems certain. Some of the lines are reducing the charge for sending information by it. On the Blackwall railway, where it was earliest applied, and serves to regulate all the proceedings, it has never failed.

It has been justly said that "the electric telegraph in a few years will bring, as it were, the whole population under one roof, and into one room. The metropolis will instantaneously transmit and receive information from every important point in the island. For every great need or emergency, the very farthest point will soon communicate its tidings or its wants, and will receive immediate reply, announcing the certain arrival of the assistance or commodity required in twenty-four hours. The island will thus become one nervous system, with a scarcely less quick and infallible action than the human frame." Its effect in conjunction with railways in providing for the safety of the community either in the event of internal commotion or foreign invasion is too obvious to need remark.*

* An American journal says, the St. Louis papers are felicitating themselves upon the prospects that, when the magnetic telegraph is completed from Washington to their city, they will be able to report the speeches in Congress a few minutes before they are delivered, in consequence of the difference of longitude between the two places!

At a recent sitting of the French Academy of Sciences, M. Arago communicated to the Academy, in the name of M. Breguet, one of the commissioners appointed by the government to report on the electric telegraph from Paris to Rouen, a note on a new mode of transmitting signals. M. Arago says, "it is possible in all weathers to communicate between Paris and Rouen with a single wire, the two extremities of which are placed in a hole or well. No return wire is needed." "We are quite sure," says *Galignani*, "that neither M. Arago nor M. Breguet would have made this communication to the Academy if they had been aware that it has no novelty. What is here announced as new is only part of the telegraphic system of Mr. Bain, which is at work in Scotland, and is patented in France by the purchaser of the invention, Mr. Boggett, of London. Mr. Boggett's telegraph, which works with a single wire, was exhibited here long before the electric telegraph was established on the Paris and Rouen railroad, and as the expense of putting it up is only one fourth of that of the telegraph in question, some members of the Academy of Sciences, and other persons, who saw the model at work, were astonished that a trial on a large scale should not have been made of his plan. Amongst the recent improvements made by Mr. Bain in his telegraph are a rapid mode of communication from station to station of a railroad, still with a single wire, by which means many accidents are to be prevented, and also a very simple mode of printing by electricity any government dispatch.

IRON AND THE IRON TRADE.

The usual quarterly meetings of the iron masters of South Staffordshire and Shropshire were held towards the close of last week, when the attendance was numerous beyond all precedent It was at first generally considered that the existing prices would be maintained, but it was soon ascertained that two of the largest firms in Staffordshire had decided on an advance of 1*l.* per ton, and after very little discussion, and a few slight objections, it was generally adopted. At the last of the meetings, held at Dudley, on Saturday, the prices were fixed as follows:—Bars, 10*l.*; sheets, 11*l.* 10*s.*; hoops, 10*l.* 10*s.*, at the works, being 40*s.* higher than those established at the last quarter day, and 20*s.* higher than those fixed at Wolverhampton a fortnight ago.

In the present active condition of the iron trade all facts connected therewith are of importance. Messrs. Short and Mahony, in their circular, give a statement of the exports of British iron from the United Kingdom for the last ten years, from which it appears that whereas in 1835 the quantity of bars shipped was 94,384 tons, in 1844 it had amounted to 230,935 tons. With the single exception of 1839, the progress of trade in this article shews an increase. The years 1843 and 1844 are the most remarkable in comparison, the quantity exported in the former period being 176,149 tons, and in the latter period 230,935 tons. The exports of pig-iron in 1835 amounted to 33,073 tons, and in 1844 to 99,960 tons. The exports of cast-iron have risen from 12,604 tons to 18,969 tons. The exports of cast-iron have risen from 12,604 tons to 18,969 tons. The gross exports (including all descriptions of the metal) amount to 472,023 tons in 1844, against 218,608 tons in 1835; and the whole of the years shew a progressive increase.

Railway Contracts.—On Tuesday last, the directors of the Midland railway assembled at the Derby station for the purpose of receiving tenders for the construction of railways from Peterborough to Stamford, and from Syston to Melton, and for a junction from Sheffield to Manchester. The contract of Messrs. Mawson and Co., of Spittal, near Doncaster, to complete the latter in eight months for 12,762*l.* was accepted; and the tenders by Mr. William Worswick, railway contractor, of Sileby, Leicestershire, to form the line from Peterborough to Stamford, a distance of twelve miles, for 47,000*l.*; and a branch from Syston to Melton, a distance of nine miles and a half, for 48,000*l.* were both accepted, and the two lines are to be completed in eight months.

CAST-IRON BRIDGES.

On the York and Midland Railway, there is a cast-iron bridge of 60 feet span, erected for the convenience of the navigation of the River Wharne, which was constructed in the place of a brick arch, and without delaying for a single day the traffic of the railway. The *Railway Chronicle* of September the 27th, gives a description of this bridge with illustrations. We extract the following:—

"This bridge was constructed on the designs of Mr. Cabry, the engineer of the line, and the circumstances in which it was formed serve both to shew the peculiar good properties and the extensive capabilities of this kind of bridge, as well as the dexterity and skill with which they were here employed. The former bridge had a central brick arch, an elliptical one, over the river Wharne. This impeded the navigation, and those old and inveterate enemies of the railways, the canal and navigation proprietors and carriers, made the most of the impediment of this arch to their navigation, of which, however, there happened to be wretchedly little to be impeded. However, the bridge must be improved, and full clear head room to a certain height of water obtained all across. To conform to these conditions was rather difficult, under the peculiar circumstances of the case, especially as the railway was opened to enormous working traffic. In this difficulty Mr. Cabry tried his talent; he opened up the road-way on the back of the arch, he inserted masonry to carry the bearings of the large cast-iron girders, he had these girders erected in their place, without disturbing all this while, either the arch below the railway or the rails themselves. The girders are wholly clear of the lines of rail. The girders, too, are wholly above the line, while the arch was entirely below. The rails across the arch were carried on longitudinal bearings; below these were passed from girder to girder, timber baulks, laid close, so as to form a continuous platform. The railway was thus carried at one and the same time by two bridges, the old brick arch wholly below the rails, and the new cast-iron bridge wholly below. One fine morning, however, Mr. Cabry chose to knock away the under one, and there was the clear open navigation, and the railway suspended in the air, as now is and will be for many a day to come. To force up the piers was an easy matter, and give them their present handsome aspect. And all this done without a day's stoppage of either the navigation below or the line above! These are some of the little satisfactory passages in the life of a sound-headed, right-hearted engineer, which make his life so pleasant a thing to look back upon. A hardworking life is, after all, far the happiest—perhaps, also, the best; for, as Carlyle says, with one of his alliterations, *work* is only another form of *worship;* or, as old Boston has it, because the devil is always busily engaged in providing jobs for those who are idle.

The revolution which the introduction of cast-iron has produced and is still extending throughout many branches of practical building, is now every where conspicuous in our cities and our public works. It is extending itself in railways perhaps more rapidly than any where else. At first cast-iron was received into railways suspiciously and slowly. This was to be expected. Cast-iron, as a material for rails, was rejected, on account of its great liability to fracture, and it was not to be expected that it would soon recover this disgrace and be admitted to the much more responsible position of supporting a bridge and carrying the weight of a whole train over a wide span, when it had just been pronounced unfit even for a small one.

Gradually, however, cast-iron, on account of its great convenience, and, in many cases, its economy, overcame some of the prejudices against it. The best form for beams of cast-iron came to be more studied and better understood. It was found to possess the great advantage of being readily obtained of any required form,—which is indeed always the advantage of a flowing over a merely malleable material. From this circumstance it could be introduced in all those difficult cases where, in low embankments, the utmost head room is required. It was found also to present great advantages where the piers did not possess foundations capable of carrying heavy arches over a wide span. All these inducements proved too strong for the antipathy of engineers for a material hitherto regarded as treacherous, and cast-iron has consequently received such attention as to have matured its perfections and provided remedies for its imperfections, to such an extent that its employment is becoming general and extremely to be commended, both for economy, convenience, and security.

Precautions, as we have just said, must be taken against the possibility of its treachery. It is a good, strong, manageable servant, but occasionally given to tricks. These, however, must be guarded against; various modes of doing this have been devised. Among these, is the system of simple *malleable iron trussing*, which was, we think, originally invented by Mr. Robert Stephenson, illustrated in the bridge in question. This trussing not only contributes to the strength of the materials while they remain sound, but in any case of fracture would serve to prevent the catastrophe of an instant breakdown in case of a flaw in the cast-iron girder.

To accomplish the change both lines at a certain point were diverted into one, and the stone-work to receive the girders proceeded with, which being done, the two girders, after being firmly bolted, were placed on trucks and run along to the spot, then lowered to their places by means of jack screws, and there firmly bedded in lead, a quarter of an inch thick. A platform of Memel timber, nine inches thick, was then placed so as to rest on the flanges at bottom of beams: on this the rails were laid, and the traffic of the line again diverted to this side during the operations on the other. The brick arch was then removed, without any cutting, by suspending a scaffold (composed of two half-balks of timber) to the platform; and after taking the two first courses off the top, operations were commenced at the side, removing the whole without losing more than three yards of brickwork.

The girders were cast in three lengths, and connected by six 1¾-inch bolts, passing through strong flanges accurately fitted to one another. In addition to the bolts were strong cast-iron plates, dovetailed and made to slip easily over snugs left on the bottom, which were then tightened up by the introduction of a steel key. On each side of the girder were placed strong wrought-iron stays, 6 inches deep and 1¾ inch thick, in three lengths of links, each 21 feet long. The eyes of these links were made sufficiently large to fit a pin or bolt of 4½ inches diameter exactly. This pin passes through the girder by means of a hole large enough to allow play on all sides. To this pin and outside of links are attached strong iron straps passing downwards through the dovetailed plate, and there, by means of nuts and screws, adjusted to the required tension. The web of girder is 2½ inches thick throughout, varying in depth from 4 feet 8 inches to 3 feet 3 inches, as circumstances require. Along the bottom and on each side are two flanges, 2½ inches thick, increasing in breadth from 7 inches at ends to 11 inches at centre. A moulding 8 inches broad and 3 inches deep runs along the top from end to end; and this, besides adding to the stability of the girder, relieves the eye from what would otherwise appear heavy and clumsy. The whole span of bridge, clear of supports, is 60 feet, thus leaving the extreme ends 5 feet for a bearing on the masonry. The flange of bottom at this part widens out 2 feet 6 inches, and is bedded, as previously mentioned, on lead. They were placed 2 feet apart at centre, the two outside ones 11 feet 6 inches from them. We subjoin a table of the weight of material used in its erection, with the estimated cost attached to each article:—

Weight of cast-iron girders, 77 tons 6 cwt. 2 qrs. at 6*l.* per ton	£463	19	0
,, Wrought-iron work, 12 tons 12 cwt. 2qrs. 15 lb., at 21s. per cwt.	265	5	4
,, Steel keys, 1 cwt. 1 qr. 2 lb., at 1s. per lb. ..	7	2	0
Timber for platform	150	0	0
Brickwork in facing abutments ..	35	0	0
Labour, &c.	80	0	0
Total cost	£1,000	0	0

Railway Joke.—Some wag has been at the expense of inserting a long advertisement in the *Railway Chronicle* of the Great National Direct Independent Land's End and John O'Groats Atmospheric Railway, with Steam Ferries to the Scilly Isles and Coasting Docks at both Extremities. It is drawn up with such an air of seriousness, and is so much *less* absurd than many of the prospectuses now before the public, that shares in it will probably be written for. The capital asked for is nine and a half millions, and the projector promises that though the line will pass some of the largest, most populous, and interesting towns in England, it shall stop at none, but go on at once to the sea. Bankers—all the banks of England and Scotland, and the towns passed by the line. Solicitors, Bull, Scott, and Co., Lincoln's-inn. Brokers, all the Stock Exchange. Secretary, John Smith, junior, Esq.!

Improvement in the Moulds for Casting Iron Tubes or Pipes.—M. C. Harrison, an intelligent French engineer, has proposed an improvement in the mould in sands in the casting of iron tubes or other cylindrical bodies, by means of which the mould or model can serve for several others, at the saving of considerable trouble, and produce an article superior in quality to that in which the mould is destroyed each time that it is used. His plan is this—he establishes two shells, hollowed in a cast, of dimensions proportionate to the pipes or other bodies moulded in the iron casting; these shells are pierced in various parts, with a certain number of holes distributed on the surface and bearing from the interior to the outside, points or asperities scarcely evident. The calibre, or bore, which is nothing more than the profile of the exterior surface of the tube, is provided at both extremities with axes, whilst the interior of the mould is polished with sand in the shells, rolling upon gutters at their extremities. When the model is to be made in sand, the humid matter is to be laid as usual, and the sand to be beat in the interior of the shells; with the aid of the calibre, which is placed for that purpose on the shells, a pure and correct form is given to the mould internally; when the interior of the mould is thus finished with proper care, and when the core is removed, it is placed in an oven, and when perfectly dry the borders of the shells are to be cleaned, so that they may join exactly; a kernel well dried is then placed at the interior of the lower shell, and the two shells fastened together with iron pins or small keys. Immediately the tube to be moulded has been raised up, the two shells must be examined, and if any of the parts have been damaged, they must be repaired; they are then smoked, and again dried; the kernel and the strainer are to be replaced, and so, one after another, the mould remains in a good state.

The Direct West-End and Croydon Railway.—The professed object of this scheme is to lessen the inconvenience to which parties are now subjected in proceeding from the west end of the metropolis to Croydon, or the more distant places on the South-Eastern and London and Brighton Railways, as well as the several sea-ports and packet-stations on the coasts of Kent and Sussex. The Viscount Ingestre takes the lead in the list of the Provisional Committee, and is supported by several of the London Aldermen, a few members of Parliament, and a great number of chairmen and directors of other and similar projects. Sir John Macneil is the consulting engineer. The proposed capital is 800,000*l.* to be divided into 40,000 shares, of 20*l.* each.

Tring, Cambridge, and Newmarket Railway.—The towns comprised in and proposed to be benefited by this line are Tring, Dunstable, Luton, Hitchin, Baldock, Royston, Cambridge, Newmarket, Bury, Ipswich, Norwich, and Ely; in short, the entire circle of the western counties bounded by the Thames southward and the Wash to the north. The capital required is 600,000*l.*, which it is proposed to raise in 24,000 shares of 25*l.* each, with a deposit of 2*l.* 12*s.* 6*d.* Lord Edward Chichester and Viscount Mandeville head the list of the provisional committee, which contains also several chairmen, vice-chairmen, and directors of existing lines. Mr. Oliver Byrne is the acting engineer, and Mr. Francis E. Fowler is the architect and surveyor.

COST OF CULVERTS.—The following table from the *Railway Chronicle*, shows the amount of labour, and the cost of constructing the culvert through Blechingley tunnel, 1324 yards lineal, with the radiating bricks and the centre:—

	Horses Days.	Bricklayers Days.	Labourers Days.
Carting bricks ..	71	—	—
Lowering bricks and mortar	43½	—	68½
Turning culvert ..	—	151¾	167¼
Loading brick carts, &c.	—	—	35
Wheeling bricks at top	—	—	252½
,, in tunnel	—	—	44
Making mortar ..	—	—	30¾
Banking	—	—	16
Total ..	114½	151¾	614½

ACTUAL COST.

		£.	s.	d.
120,000 bricks, including waste, at 50s. per thousand		300	0	0
Materials consumed	75 bshls. of cement, at 1s. 8d. per bshl.	6	5	0
	48 yards of lime, at 13s. per yard	31	4	0
	96 yards of sand, at 1s. per yard	4	16	0
	Carting do., at 2s. per yard	2	12	0
	Carting water	2	5	6
	Candles, 410 lbs., at 6½d.	11	2	1
Labour	Horses, 114½ days, at 7s.	40	1	6
	Bricklayers, 151¾ days, at 6s.	45	10	6
	Labourers, 614½ days, at 3s. 3d.	99	16	4
		550	12	11
Centre, as above described ..		10	0	0
		£560	12	11

Being at the rate of 8s. 5½d. per yard forward. The weight of iron-work to the centre, including axles to the rollers, was 181 pounds. Had the culvert at Blechingley been built in two rings, with common bricks, it would have taken 264 to a yard forward, or 350,000 in the whole. —F. W. SIMS.

MINERAL RAILWAYS.—The advantages which will result to the community at large from the use of railway power in the "winning" and distribution of mineral produce, cannot be more strongly illustrated than in the case of the marble quarries of the Bas Boulonnois, and of the great slate quarry of Dolawen, in Caernarvonshire, described and represented in late number the of *Illustrated News*. A marble mantel-piece, a marble side table, a marble wash-hand-stand, are household luxuries which are almost wholly shut from the poor, and a slate roof, a slate paved yard, a slate cupboard are almost equally shut, by their cost, from village use, where thatch, and mud, and dirt prevail. Both these classes of conveniences are enjoyed in the neighbourhood of the quarries producing suitable materials. In the Bas Boulonnois marble is in common use by the peasantry, and in Llandegai, the nearest town to the Dolawen quarry, slate, in abundance, is procurable for all sorts of household purposes. But did a ready means of transit enable the proprietors of the royalties of these spots to distribute their respective measures of produce, there is marble enough in the Bas Boulonnois to supply all England, and Dolawen is sufficiently rich in slate to meet all the requirements of northern France. Railways are on the point of removing these impediments to the comfort and civilization of the people.

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The main object of this company is to unite by railway communication the city of Salisbury with the port of Lymington, embracing in its course the towns of Downton, Fordingbridge, and Ringwood, and forming two most valuable connecting links with the line of the Southampton and Dorchester Railway, now in the course of construction. The first line, about four miles in extent, will proceed from Lymington, and effect a junction at Brockenhurst; the second line, about 18 miles in length, will be made at the town of Ringwood (through which the Southampton and Dorchester line passes), and will run to Salisbury. It will be perceived, on reference to the accompanying map, that a direct and expeditious route will thus be opened from Salisbury and the western and north-western counties of England to the Isle of Wight, the western division of which admired fashionable resort will also, in point of time, by this means of railway communication, be brought much nearer to London.

The second part of this undertaking is the improvement of the port of Lymington; on which it is proposed to expend a sum of from 20,000*l.* to 30,000*l.*, as may be deemed advisable upon the report of the company's engineer, in rendering the river and harbour navigable for ships of 300 tons and upwards, being of a larger class than those now capable of trading there—a defect which has been injurious to the trade of the port, and inimical to the prosperity of the town. An advantageous arrangement will be made with the corporation of Lymington, by which a part of the increased dues will be appropriated for payment of interest on the sum thus expended. A great disadvantage under which Lymington has hitherto laboured is, its not being a free port—a restriction which would at once be removed by the increase of trade consequent on the improvement of the harbour and the advantages derivable from a direct inland railway communication.

This desirable undertaking appears to be singularly favoured. The proposed line does not exceed 22 miles, passing over a country which is nearly an entire flat, and connecting towns of a populous and industrial character, the traffic and commerce of which must be necessarily vastly augmented.

The capital required has been estimated at 300,000*l.*; but there is every reasonable probability that the necessary outlay will not amount to two-thirds of that sum. This may be safely anticipated if the company succeed, as they have every reason to suppose they will, in effecting a junction with the Manchester, Southampton, and Poole Railway (Lacy's line), should that company obtain the sanction of Parliament. The surveyed route of that railway is to pass from Salisbury through or near to the towns of Downton and Fordingbridge on to Poole, and it would be a portion of the present undertaking in the line from Ringwood to effect a junction with the above railway at or near to the town of Fordingbridge—a proposition that has been already favourably received, as the proposed company would thereby confer fully as many advantages as they could possibly receive; and, if accomplished, it would enable the company to realize the railway part of their undertaking by the construction of little more than ten miles of line.

A very considerable and lucrative traffic both for passengers and goods to and from the Isle of Wight, viâ Lymington and Yarmouth, must necessarily ensue from the proposed junction with the Southampton and Dorchester Railway at Brockenhurst. The important towns of Ryde and Newport, and the garrison depot at Parkhurst, will be brought nearer to all the counties north or west of Hampshire than by any other route. Ventnor and other places of popular and fashionable resort on the southern and western parts of the island will, in like manner, participate in this shortened mode of communication, with the additional advantage of having a more direct line to the Metropolis; while the much-desired facility for making the shortest and safest sea-passage generally available will thus be accomplished. The fast vessels of the Lymington Steam Packet Company complete the distance between that port and Yarmouth in twenty-five minutes. When, therefore, it is considered that the resident population of those portions of the island referred to exceeds 25,000, and that the summer visitors may be fairly estimated at not less than 3,000, to all of whom the proposed undertaking would secure the benefits alluded to, the financial result to the company cannot but be satisfactory.

Lymington is celebrated for the beauty of its surrounding scenery as well as the salubrity of its air; and therefore, with an improved port, and regarded as a terminus, it may naturally be expected that the number of its visitors would greatly swell the amount of railway traffic.

It may be fairly assumed that the shipbuilding and timber trades, which have acquired great importance in this port from the contiguity of the New Forest, would be considerably augmented by the proposed railway and improvement of the harbour, both of which, also, could not fail to give a valuable impetus to the coal and salt trades of Lymington.

The traffic along the line, particularly that arising from the busy and increasing market town of Ringwood, the surrounding agricultural district, the borough town of Christchurch, and the fashionable watering-places of Muddiford and Bournemouth, is of such a character as to leave no reasonable doubt upon the minds of those locally resident that it would afford a most valuable return for the proposed outlay.

From the very favourable manner in which the present undertaking has been received both at Salisbury and Lymington, and the nature of the country through which the projected line will pass, the provisional committee have every reason to believe that they will not experience any opposition on the part of the landowners and other proprietors.

Liabilities of shareholders will be limited to the amount of their respective shares, and a power will be taken in the Act to allow 4*l.* per cent. per annum interest upon all calls made until the opening of the line.

A preference in the allotment of shares will be given to the applications of those locally interested, and also to shareholders of the Southampton and Dorchester, and the Manchester, Southampton, and Poole (Lacy's line) railway companies.

Prospectuses and maps may be obtained of the solicitors and local agents, and of the following sharebrokers:—Messrs. Taunton and Bush, Austin Friars; Mr Creudson, Liverpool; Mr. J. O. Neil, Manchester; Messrs. Young and Co., Hull; Messrs. Rose and Dyson, Leeds; Mr. Balme, Gloucester; Mr. H. Vatchell, Exeter; Messrs. Tate and Nash, Bristol; Mr. Collis, Birmingham; Mr. Allam, Edinburgh; Messrs. Easly and Son, Southampton.

Applications for shares in the annexed form may be made to the secretary, at the offices of the company, and of the solicitors.

To the Provisional Committee of the Salisbury and Lymington Junction Railway and Port of Lymington Improvement Company.

Gentlemen,—I request that you will allot to me shares of 20*l.* each in the above railway, and I hereby undertake to accept the same or any less number that you may allot me, and to pay the deposit of 2*l.* 2s. per share thereon, and to sign the Parliamentary contract and subscribers agreement when required.

Dated this day of 1845.

Name in full.....
Place of Business or Profession .....
Residence .....
Business or Profession .....
Usual Signature .....
Name, Residence, and Profession of Referees..

PROSSER'S EXPERIMENTAL RAILWAY AND BURNETT'S PATENT.

THE attention of Railway Companies, Builders, and others, is respectfully called by the Proprietors of Sir William Burnett's Patent to the Wooden Rails laid down at Prosser's Experimental Railway on Wimbledon-common; part of which, having been prepared by their process, in addition to being effectually preserved from Dry Rot, will be found to exhibit all the characteristics of thoroughly seasoned timber, although only cut down in the month of May last, and prepared while in a perfectly green state. Hydraulic apparatus and Tanks. Millwall, Poplar, nearly opposite Greenwich; Offices, 53, King William-street, London-bridge.

THE DIRECT WEST-END and CROYDON RAILWAY.
(Provisionally registered).

Capital, £800,000, in 40,000 shares of 20*l.* each.

Deposit, £2. 2*s.* per share.

PROVISIONAL COMMITTEE.

The Viscount Ingestre, M.P. Brompton Park, London
Sir James Anderson, M.R.I.A. New Burlington-street, Director of the Hereford and Merthyr Tydvil Railway
John Byng Banks, esq. Lansdown-road, Stockwell, director of the Great Leeds and London Direct Railway
James Bailey, esq. Highbury Park, director of the Sligo, Donegal, Tyrone, Londonderry, and Belfast Junction, and of the Scarborough, Whitby, Stockton-on-Tees, and Newcastle and York Junction Railways
William Banks, esq. 4, Honey-lane, director of the Manchester and Rugby, and Great Leeds and London Railways
Lieut.-Gen. Sir R. Barton, K.C.B. 2, Montagu Square, director of the York and Lancaster Railway
Major Beresford, M.P. 77, Pall Mall, chairman of the Leeds and Carlisle, and director of the Tean and Dove Valley, and West Midland, Manchester, and Southampton Railways
Charles R. Bigge, esq. 19, Bryanstone-square, director of the Great Grimsby, Louth, Horncastle, Lincoln, and Midland Junction Railway
William Bland, esq. Brixton, director of the North Wales, and Richmond and West End Junction Railways
William Blanshard, esq. York, chairman of the Liberty of Ripon Quarter Sessions, and director of the York, Hull, and East and West Yorkshire Junction Railway
William Bradley, esq. Manor Oaks, Sheffield, chairman of the Isle of Ely Railway, and director of the Manchester and Sheffield Railway
Alfred Brodie, esq. Upper Montagu-street, Montagu-square, director of the Grand Trunk Railway
Isaac Baker Brown, esq. Oxford-square, Hyde-park, director of the Bristol and Dover Direct Junction Railway
George Augustus Brown, esq. 20, Gower-street, director of the Callao and Lima Railway
Thomas Byrom, esq. Wigan, director of the Leeds and Liverpool Direct, and Liverpool, Preston, and North Union Junction Railways
William Byrom, esq. Oldham, director of the York and Lancaster, the Cheltenham, Oxford, and London Railways
Edwin Cadman, esq. Westbourne House, Sheffield, director of the Direct Birmingham, Oxford, Reading, and Brighton Railway
William Caldwell, esq. Inch Hall, near Wigan, Lancashire, director of the Manchester, Derby, and Rugby, and Leeds and Liverpool direct Railways
William Carr, esq. Blackheath-park
John Carter, esq. F.R.A.S. Park-lodge, Stockwell; director of the Grand Trunk Railway
E. Turst Carver, esq. Forest Lodge, Tulse Hill; director of the direct Birmingham, Oxford, and Brighton Railway
John Castendieck, esq. Lewisham, Kent
John Chauntler, esq. Friday-street, London; director of the Chelmsford and Bury, and York and Lancaster Railways
Thomas Challis, esq. Alderman of London; director of the direct Western Railway
Richard Clark, esq. Farnham, Hants
George Clive, esq. Sanderstead, near Croydon; director of the Cheltenham, Oxford, and London Junction Railway
Benjamin Collett, esq. Manor House, Bromsgrove, Worcestershire; director of the London, Warwick, Leamington, and Kidderminster; and Rugby, Warwick, and Worcester Railways
Nathaniel Cooke, esq. Bayswater; director of the Ambergate, Nottingham, Boston, and Eastern Junction Railway
Millis Coventry, esq. White-hart-court, Lombard street; director of the Birmingham Extension and Great Leeds and London direct Railways
William Croudson, esq. Manor Cottage, Wigan, director of the Liverpool and Leeds Direct, of the Staffordshire Potteries, of the Keighley, Halifax, and Huddersfield, and the Cheltenham, Oxford, and London Railways
John Croudson, esq. King Street House, Wigan, director of the Liverpool and Leeds Direct, of the Keighley, Halifax, and Huddersfield, of the Staffordshire Potteries, and of the York and Kenyon Junction Railways
Lieut. Col. Lothian Dickson, Curzon-street, May Fair, director of the Reading and Reigate Junction Railway
Charles R. Dodd, esq. North Brixton, director of the Great Welsh Central Railway, of the Bath, Bristol, and Dover Railway, of the Hull and Holyhead Railway, &c.
Miles Dormer, esq. Hans-place, Sloane-street, director of the Exeter, Dorchester, and Weymouth Railway
Col. Robert Douglas, Royal Artillery, United Service Club, director of the London and Birmingham Extension Railway
Daniel Ebbetts, esq. Mincing-lane, director of the Direct Western Railway
Colonel Elrington, Scots Fusileer Guards, Wyndham Place, Bryanstone-square, director of the London and Manchester, and Liverpool and Leeds Direct Railways
Francis Ewart, esq. Brick Court, Temple, director of the Great Leeds and London Direct, and of the Exeter, Dorchester, and Weymouth Railways
Thomas Farncomb, esq. Alderman of the City of London; director of the London and Westminster Bank, and director of London, Warwick, Leamington, and Kidderminster Railway
Edmund Aldam Fawcett, esq. London, Derby, and Nottingham
Robert Fisher, esq. Highbury Park, director of the Trent Valley Continuation Railway
The Rev. H. R. Fowler, Manchester-square, director of the Direct Birmingham, Oxford, Reading, and Brighton Railway
George Gamble, esq. Gainsborough, director of the Nottingham and Gainsborough Railway
Francis Gamble, esq. Gainsborough, director of the Nottingham and Gainsborough Railway
Henry Glynn, esq. Garden Court, Temple
Captain Twistleton Graves, Duke-street, St. James's, director of the Eastern Counties Junction and Southend and the Midland Grand Junction Railways
F. W. Hamilton, esq. 59, Gloucester Place, Portman Square, director of the York and Lancaster Railway
C. H. Rogers Harrison, esq., Upper Montagu-street, Montagu-square, director of the Grand Trunk Railway
George R. Harrison, esq. Harlingford Place, Kennington; director of the Grand Trunk Railway
W. G. Harrison, esq. Hill House, Lower Tooting
John Harrison, esq. Borough and Norwood, merchant
Thomas Hartshorne, esq. Silkmore House, Stafford
William Hay, esq. 19, Clifford-street, Bond-street
Josiah Heale, esq. Gray's-inn-square, director of the Chelmsford and Bury Railway
Lawrence Heyworth, esq. Yew Tree, Liverpool
A. W. Hillary, esq. 66, Cadogan-place, director of the Direct Exeter and Auxerre and La Roche Railways
G. E. Hodgkinson, esq. 7, York-terrace, Regent's-park
John Holford, Rusholm Hall, Manchester, director of the York and Lancaster Railway
John Holmes, esq. 28, St. James-street, director of the York and Lancaster, and Exeter, Dorchester, and Weymouth Railways
William Bulkeley Hughes, esq. M.P. chairman of the Welch Midland, and director of the South and Midlands Junction Railway
W. Hughes Hughes, esq. F.S.A. F.L.S. &c. alderman of London, chairman of the Manchester and Birkenhead Continuation, and London and Greenwich Railways
Stephen Hutchinson, esq. London Gas Works, Vauxhall, director of the Grand Trunk Railway
John Kynnersley Hooper, esq. alderman of London, director of the London and Manchester Direct Railway.
Herbert Ingram, esq. 198, Strand, and Swineshead Abbey, Lincolnshire, director of the Ambergate, Nottingham, Boston, and Eastern Junction Railway.
W. H. Jackson, esq. 66, Red Lion-street, Clerkenwell
John Jameson, esq. St. George's-place, Brixton, director of the Great Leeds and London Direct, and of the Cumberland Union Railways
Siegerich C. Kreeft, esq. Billiter-square, director of the Exeter, Dorchester, and Weymouth Junction Coast Railway
Richard Keily, esq. 6, Cleveland-row, chairman of the New Ross, Carlow, and Kilkenny, and director of the Cambridge and Lincoln Extension Railways
Sir J. Key, bart. alderman of London, director of the London and Manchester Direct Railway
Henry Garrett Key, esq. Tulse-hill, Surrey
Valentine Knight, esq. 3, Cornwall-terrace, Regent's Park, director of the Direct Western, Dendre Valley, and Grand Trunk Railway
James Lamb, esq. 25, Hyde-park-square, director of the Dover and Bristol Railway
William Lawrence, esq. Brixton, director of the London and Manchester and Direct Western Railways
William Alexander Long, jun. esq. Kingswood House, Wotton-under-Edge, director of the Erewash Valley Extension Railway
John Lowe, esq. Norfolk-crescent, Hyde Park, director of the Leeds, Fleetwood, and Liverpool Railway
Capt. J. P. Macdougall, Fir Grove, Brixton, chairman of the Isle of Man Railway, and director of the Leeds and Fleetwood Railway
William Margetson, esq. Streatham-hill, Brixton
J. Mee Matthew, esq. 4, Gray's-inn-square, director of the Direct Western Railway
James Macmillan, esq. London and Southampton, director of the Worcester, Warwick, and Rugby Railway, &c. &c.
James Meaburn, esq. Grove Hill, Camberwell
Thomas Morris, esq. Fairhurst Hall, near Wigan, director of the Blackburn, Chorley, and Liverpool, and Leeds and Liverpool Direct Railways
James Morrison, esq. director of the Chepstow and Forest of Dean and Rhonda and Ely Vallies Junction Railway
The Honourable John Oliphant Murray, Half Moon-street
Horatio Nelson, esq. Charlotte-street, Bedford-square, director of the Exeter, Dorchester, and Weymouth Railway
William Nevill, esq. West Green, Stamford Hill
G. Parbury, esq. Russell-square, director of Manchester and Birmingham Railway
W. Simpson Potter, esq. Sussex Gardens, director of the Grand Trunk, the Oxford and Witney, and Reading and Reigate Junction Railways
Samuel P. Pratt, esq. F.R.S. Bath, and 55, Lincoln's-inn-fields, director of the Kennet and Avon Canal Company, and York and Lancaster Railway
George Richard Pye, esq. Lavenham, Suffolk
Lewis Pocock, esq. F.S.A. Montagu-square, director of the Southampton, Manchester, and Oxford Junction, and Brighton and Cheltenham Direct Railways
Sir George Rich, Lowndes-street, Belgrave-square, director of the Metropolitan Railways' Junction Company, and of the London, Southampton, Gosport, and Portsmouth Railway
John Reginald Riddell, Esq. Bycullah House, Enfield Middlesex, director of the York and Lancaster Railway
R. A. Riddell, esq. 23, Bryanstone street, Portman-square, director of the Tring, Reading, and Basingstoke, and Oxford and Worcester Extension Railways
James Reid, esq. Beulah Wood, Croydon, director of the Metropolitan Railways Junction Company, and director of the Great Northern and Southern direct from Huddersfield to Derby
A. Macdonald Ritchie, esq. Middle Temple, London, director of the Great Western Extension Atmospheric Railway
Richard Rowe, esq. Beaufoy Terrace, Maida Vale.
H. Savage, esq. Dorset-place, Dorset-square, director of the West Midland, Manchester, and Southampton Railway
Edward H. O. Scott, esq. Hoe Garden House, Plymouth, director of the Exeter, Dorchester, and Weymouth Railway
A. Scott, esq. Hadley Priory, Middlesex
Julius le Souëf, esq. London, director of the St. Albans and Hertford and Bristol and Dover Direct Railways
William Studley, esq. Alfred-place, Brixton, director of the Great Grimsby, Louth, Horncastle, Lincoln, and Midland Junction Railway
Martin Stutely, esq. Cambridge-terrace, Regent's-park, director of the Leeds and Carlisle, direct Western, and Grand Trunk Railways
Timothy Steward, esq. Heigham Lodge, near Norwich
Henry Taylor, esq. Wigan, director of the Leeds and Liverpool Direct, Manchester and Wigan, and Liverpool, Preston, and North Union Railways
James Templer, esq. Brixton Rise, director of the Great Leeds and London, and Derby, Uttoxeter, and Stafford Railways
Joseph Underwood, esq. The Hall, Blackheath-park, director of the Direct London and Manchester, and Leeds and Liverpool Direct Railways
Charles Parker Vickerman, esq. Manor-park, Streatham
Robert Watkins, esq. Augusta House, Worthing, director of the Oxford, Southampton, and Gosport, and Liverpool and Derby Railways
Sir Henry Webb, bart. 105, Pall Mall, London, director of the York and Lancaster, and Direct Western Railways
David Wheatcroft, esq. director of the Rugby, Derby, and Manchester, and Nottingham and Gloucester Railways
J. Whiting, esq. Carshalton Grove, Surrey
Major White, Pall Mall, director of the South Midland, and Leeds, Fleetwood, and Liverpool Railway
Sir Thomas Woollaston White, bart. Walling, Wells, Nottingham
Thomas Williams, esq. M.D. Belgrave-street South, Belgrave-square, director of the Lincolnshire and Eastern Counties Junction, and Wilts, Somerset, and Southampton Junction Railways.
W. S. Wilson, esq. Norwich, director of the Leeds and Carlisle, and Maryport and Carlisle Railways.
Sir William Wynn, Maesynewadd, and Suffolk Place, Pall Mall; Chairman of the North Wales, and South and Midlands Junction Railway.

(With power to add to their number.)

COMMITTEE OF MANAGEMENT.

Major Beresford, M.P.,	F. W. Hamilton, esq.
William Bulkeley Hughes, M.P.	Captain J. P. Macdougall.
Sir J. Anderson, M.R.I.A.	William Bradley, esq.
Sir J. Key, bart.	Joseph Underwood, esq.
Sir H. Webb, bart.	Nathaniel Cooke, esq.
A. W. Hillary, esq.	Charles R. Bigge, esq.

(With power to add to their number.)

BANKERS.—The Commercial Bank of London.

CONSULTING ENGINEER.—Sir John Macneill, LL.D. F.R.S. M.I.C.E.

ACTING ENGINEERS.—Messrs. R. and T. Hopkins, M.I.C.E. Messrs. Gough and Rounsieu, C.E.

SURVEYORS.—Messrs. Shuttleworth and Sons.

SOLICITORS.—Messrs. Chauntler and Westwood, 8, Gray's-inn-square.

SECRETARY.—J. L. Cotton, esq.

The principal objects of this scheme are:—1st. To remedy the evils of delay and inconvenience to which parties are, at the present time, necessarily subjected in proceeding from the west end of the metropolis to Croydon, or the more distant places on the South-Eastern and London and Brighton Railways, as well as the several sea ports and packet stations on the coasts of Kent and Sussex; and 2nd. To supply to the numerous and wealthy inhabitants of the district through which the intended line will pass (at present wholly without railway accommodation), a greatly improved means for the interchange of communication with the metropolis, and with each other.

Commencing at the intended terminus of the South-Western Railway (at Hungerford or Waterloo-bridge, the line will take the most practicable route to Kennington, from thence it will follow as near as possible the old turnpike road, passing through or near to the wealthy and populous districts of Stockwell, Clapham, Brixton, Tulse-hill, Streatham, Norwood, Beulah, and Thornton-heath, effecting a junction at Croydon with the several existing or projected lines from that place.

It is also proposed to form a branch or branches from the neighbourhood of Streatham to Mitcham and Tooting, and thus to extend to those places, and their respective neighbourhoods, the advantages of a direct railway communication with the metropolis.

A great portion of the traffic in passengers and goods upon the Brighton and Dover lines is supplied from the West End of London, and the Birmingham and Great Western Railways. The necessity of proceeding to the station at London Bridge, and by the present circuitous route to Croydon, is a serious and unnecessary inconvenience, entailing additional expense and delay. The removal of this long-felt grievance is a leading object with the promoters of the present undertaking. They deem it right, however, to observe, in laying this scheme before the public, that they have no desire to interfere with existing railway interests, further than is absolutely indispensable, but that on the other hand, it will be their object to yield assistance to, and in return, endeavour to secure it, from each company with which this line may ultimately be connected.

A glance at the map will shew, that as a branch or arm of the London and Brighton Railway, this undertaking completes a straight line of communication from the West End of London to Croydon, Reigate, and Brighton, and renders the ports of Dover and Folkstone, as well as the several places on the South-Eastern Line, more easily accessible from that part of the metropolis.

The great amount of traffic at the present time upon the roads between Croydon, Mitcham, Tooting, &c., and London, proves at once that the existing Railway faculties do not at all meet the exigencies of the mass of population to whom this line will be available.

The population who reside upon or in the immediate neighbourhood of the proposed Line, independent of the Metropolis, and between the intended termini, exceed 100,000, whose wants are almost wholly supplied from the London markets, &c., and who have, at the present time, no mode of conveyance but upon the turnpike road. In the transit of building materials, corn, coal, lime, and other heavy goods, from the warehouses and wharfs on the banks of the Thames, and for marketable produce in each direction, this Line must become to them particularly useful and convenient.

Some idea may be formed of the local necessity for this railway, when it is known that the number of passengers who avail themselves of the accommodation afforded by the several omnibuses and other public vehicles, running upon the turnpike road, have been ascertained to exceed 2,600 daily. An equal number (at least) proceed by private and other conveyances. Of foot passengers, although no accurate estimate can be formed of them, it is considered that they at least number four times that of passengers who travel by conveyance. The tonnage of goods it is calculated will be in full proportion to the receipts from passengers.

Experience has fully proved, that on however liberal a scale the probability of future traffic in the trade of goods and passengers has been judged, almost every line of railway has, upon its completion, vastly exceeded the calculated amount. There are, however, in this instance, reasons for supposing that the extended faculties of communication will cause more than an ordinary increase in the conveyance of passengers. The country which the line of railway will open is singularly picturesque and beautiful, and in addition to the admired districts of Brixton and Streatham, the long-favoured and much-frequented Beulah and Norwood will be placed within easy access, and become more than ever objects of interest and delight to the visitor and resident of the Metropolis.

There can therefore be little doubt but that the present line must become a profitable and eligible scheme for the investment of capital.

The promoters of this undertaking have pleasure in announcing that it is approved of, and will be generally supported by local influence. They have caused a partial survey to be made, which will be completed shortly, and they have the assurance of their engineers that there are not more than ordinary difficulties to contend with. The liability of the shareholders will be restricted by Act of Parliament to the amount of their subscriptions; and power will be applied for in the bill to allow interest at 4*l.* per cent. per annum on all calls from the passing of the Act until the opening of the line.

Applications for further information, prospectuses, and shares, (in the form annexed,) may be addressed to the Solicitors, to the Secretary, at the Offices of the Company, No. 34, Gracechurch-street; or to the following Brokers, viz.:—Messrs. B. and M. Boyd, Princes-street; Mr. H. J. Williams, 80, Old Broad-street; Messrs. Greystone and Earle, York; Mr. Anthony Laurie, Liverpool; Messrs. Cardwell and Co., and Mr. Henry Benton, Manchester; Mr. James Pearson, Birmingham; Messrs. Watson and Co., Leeds; Messrs. Brady and Stainforth, Hull; Mr. George Edwards, Bristol; Mr. Thomas Sandford, Exeter; Mr. James Pringle, Edinburgh; Mr. J. W. Carr, Colchester.

FORM OF APPLICATION FOR SHARES.

To the Provisional Committee of the Direct West End and Croydon Railway.

Gentlemen,—I request that you will allot me ____ shares of 20*l.* each in the above Railway, upon which or upon any less number that may be allotted to me, I hereby agree to pay the deposit, and to execute the parliamentary contract and the subscriber's agreement when required to do so.

Name.....
Residence.....
Profession or Trade (if any).....
Place of Business (if any).....
Reference.....
Date.....

THE DIRECT WEST-END and CROYDON RAILWAY.—The Provisional Committee give notice that no application for Shares in this Company can be received after the 20th instant.

By order.

J. L. COTTON, Secretary.

34, Gracechurch street, 10th October, 1845.

PAYNE'S PATENT PROCESS FOR THE PRESERVATION AND IMPROVEMENT OF TIMBER, &c.

PAYNE and LODER beg to invite the attention of Engineers, Railway Companies, Architects, and others to the above process, and to state that they are prepared to erect the necessary apparatus in any part of the United Kingdom where the quantity is sufficiently large to cover the outlay of its removal.

Further particulars can be obtained at Whitehall-Wharf Cannon-row, Westminster, or at their other stations, Fleetwood-on-Wyre, Lancashire; Wisbeach, Cambridgeshire; Union-Wharf, Southampton; and Guildford, Surrey.

BURTON-UPON TRENT, STAFFORD, SHREWSBURY, and NEWTOWN RAILWAY.

(Provisionally Registered.)

Capital, £1,500,000 in 75,000 shares of 20*l.* each.
Deposit, £2. 2s. per share.

PROVISIONAL COMMITTEE.

The Right Hon. the Earl of Rosmore
The Hon. Colonel Leicester Stanhope, Ashburnham-house, Chelsea, Chairman of Remington's Direct London and Manchester Railway
The Hon. Capt. Douglas Kinnaird Pulteney, 4, Parliament-street, Director of the York and Lancaster, of the Derbyshire, Staffordshire, and Worcestershire, of the Leeds, Huddersfield, Sheffield, and South Staffordshire, and of the Direct East and West Junction Railways
Lieutenant-Colonel George Fitch, 36, York-terrace, London, Director of the York and Lancaster Railway
John Humphery, esq. M.P. Alderman of London, Director of the Oxford, Southampton, Gosport, and Portsmouth Railway
Sir George Anson, London
Sir William Boothby, bart. Ashby Hall, Derbyshire, Director of the Derbyshire, Staffordshire, and Worcestershire Junction, and of the Leeds, Huddersfield, Sheffield, and South Staffordshire Railways
Sir William Lowthrop, Hull, and Alga House, Scarborough, Director of the Leeds, Huddersfield, Sheffield, and South Staffordshire, and of the Derbyshire, Staffordshire, and Worcestershire Junction Railways
Major-General Sir Love Parry Jones Parry, K.H. Madryn, Carnarvonshire, Director of the Leicester and Bedford and of the Direct East and West Junction Railways
Sir George William Prescott, bart. Theobalds, Deputy Chairman of the Derbyshire, Staffordshire, and Worcestershire Junction, and Director of the Leeds, Huddersfield, Sheffield, and South Staffordshire, and of the Direct East and West Junction Railways
John Turner, esq. M.P.
Sir William Twysden, bart.
Sir William Wynn, K.C.B. Suffolk-street, Pall-mall, Chairman of the North Wales Railway
Sir Henry Webb, bart. 105, Pall-mall, Director of the York and Lancaster, and the Direct London and Holyhead and Port Dynllaen Railways
Sir William Young, bart. East-India Director, Westbourne-street, Hyde Park-gardens, Director of the Leeds, Huddersfield, Sheffield, and South Staffordshire, and of the Derbyshire, Staffordshire, and Worcestershire Junction Railways
The Sheriff of York, Director of the Leeds, Huddersfield, Sheffield, and South Staffordshire, and of the Derbyshire, Staffordshire, and Worcestershire Junction Railways, and Governor of the York Merchants' Company
John Burgess, esq. Boroughreeve of Manchester, Director of the Chester and Manchester Direct Railway
William Hughes Hughes, esq. F.S.A. Alderman of London, Chairman of the Manchester and Birkenhead Continuation, and Director of the London and Greenwich, and of the Chepstow, Forest of Dean, and Gloucester Junction, and the Oxford, Southampton, Gosport, and Portsmouth Railways
Edward Terry, esq. Mayor of Dudley
Ayscough, Admiral, Southampton, Director of the Rugby, Warwick, and Worcester Railways
Adair, Major, Director of the Church of England Assurance Company
Allen, Robert, esq. Serjeant-at-law, Serjeant's-inn, Temple, London, Director of the Derbyshire, Staffordshire, and Worcestershire Railway
Banks, William, esq. Director of the Manchester and Rugby Direct, and Great Leeds and London Railways
Banks, John Byng, esq. Stockwell, Surrey, Director of the Great Leeds and London Railway
Booth, John, esq. Park Cottage, Macclesfield, Director of Remington's Direct London and Manchester Railway
Bicknell, John Alexander, esq. Brandon Cottage, Bristol, Director of the Oxford and Worcester Extension, and Chester Junction Railway
Birchinall, T. esq. Field Bank, Macclesfield, Director of Remington's Direct London and Manchester Railway
Brightman, John, esq. Regency-square, Brighton, Director of the Direct Northern, and London, Hounslow, and Western Railways
Brindley, Thomas, esq. Uttoxeter, Director of the Derbyshire, Staffordshire, and Worcestershire Junction, and of the Direct East and West Junction Railways
Brooks, John, esq. Alderman of Manchester, Director of Remington's Direct London and Manchester Railway
Brown, Thomas, esq. Silsoe
Brown, Joseph, esq. Alderman of Bedford
Brown, Henry, esq. Ashby-de-la-Zouch, Director of Remington's Direct London and Manchester Railway
Browne, Thomas, esq. Wurkworth, Northumberland, Director of Remington's Direct London and Manchester Railway
Burnett, John, esq. Cheltenham, Coroner of the County
Chambers, William, esq. Cocksbench, Derbyshire, Director of Remington's Direct London and Manchester Railway
Chitty, Thomas, esq. Temple, Director of the Rugby, Warwick, and Worcester Railway
Clarke, Jeremiah, esq. Macclesfield, Director of Remington's London and Manchester, and of the Derbyshire, Staffordshire, and Worcestershire Junction, and of the Leeds, Huddersfield, Sheffield, and South Staffordshire Railways
Cleobury, Thomas Mortimer, esq. Askew Villa, Shepherd's Bush
Cooke, Rev. John, Uttoxeter, Director of the Derbyshire, Staffordshire, and Worcestershire Junction, and of the Leeds, Huddersfield, Sheffield, and South Staffordshire, Direct East and West Junction, and of Remington's Direct London and Manchester Railways
Cooke, John, esq. Macclesfield, Director of Remington's Direct London and Manchester Railway
Cooper, John Douglas, esq. Home Cottage, Ashbourne, Director of the Derbyshire, Staffordshire, and Worcestershire Junction Railway
Cooper, C. Kelly, esq. Ashbourne
Crocket, Thomas, esq. Cannock, Director of the Derbyshire, Staffordshire, and Worcestershire Junction, and of the Leeds, Huddersfield, Sheffield, and South Staffordshire Railways
Croft, John T., Major, 15, Regent-street, Piccadilly, Deputy Chairman of the Chester and Manchester Railway, and Director of the Derbyshire, Staffordshire, and Worcestershire Junction, of the Leeds, Huddersfield, Sheffield, and South Staffordshire, and of the Direct East and West Junction, and of Remington's Direct London and Manchester Railways
Cumberlege, N. esq. York-terrace, Regent's-park, Director of the Derbyshire, Staffordshire, and Worcestershire Junction Railway
Dalby, John Robert, esq. Ashbourne, Derbyshire, Director of the Derbyshire, Staffordshire, and Worcestershire Junction, and of the Leeds, Huddersfield, Sheffield, and South Staffordshire Railways
Dale, Major Thurston, Ashbourne, Director of the Leeds, Huddersfield, Sheffield, and South Staffordshire Railway
Dawson, Charles, esq. Stafford
Eames, John, esq. Ashby-de-la-Zouch
Eardley, Benjamin, esq. Great Haywood, Staffordshire
Edgcomb, J. esq. Watling-street, London
Ellis, John, esq. Director of the Direct Birmingham and Manchester Railway
Fidler, Peter Pichott, esq. Higgin Grange, Derbyshire, Director of the Leeds, Sheffield, Huddersfield, and South Staffordshire, and the Derbyshire, Staffordshire, and Worcestershire Junction Railways
Garde, Richard, esq. Stephen's Green, Dublin, Director of the Birmingham and Manchester Railway
Garle, Samuel, esq. Uttoxeter, Director of the Leeds, Huddersfield, Sheffield, and South Staffordshire Railway
Gisborne, Henry Francis, esq. Derby, Director of the Staffordshire, Leicester, and Tamworth, and Derby and Crewe, Macclesfield and Lichfield Railways
Grant, Daniel, esq. Manchester, Director of Remington's Direct London and Manchester Railway
Gutch, John Matthew, esq. Banker, Worcester, Director of Remington's Direct London and Manchester, of the Direct East and West Junction, and of the Derbyshire, Staffordshire, and Worcester Junction Railways
Haines, Samuel, esq. Chad House, Edgbaston, Director of the Direct East and West Junction Railways
Haden, Joseph, esq. Ironmaster, Dudley, Director of the Derbyshire, Staffordshire, and Worcestershire Junction, and of the Leeds, Huddersfield, Sheffield, and South Staffordshire Railways
Hamer, S. esq. General Post-office, and Southampton-row, Russell-square, Director of Remington's Direct London and Manchester Railway
Hamilton, Frederic William, esq. 59, Gloucester-place, Portman-square, Director of the York and Lancaster, the Great Munster, and the Bandon and Bantry Railways
Handley, Thomas, Hartshorn Potteries, Director of Remington's Direct London and Manchester Railway
Hall, John, esq. Ashby, Director of Remington's Direct London and Manchester Railway
Hale, Thomas, esq. Director of the Ashby-de-la-Zouch Potteries Railway
Harris, John, esq. Springfield, Bedford, Director of Remington's Direct London and Manchester Railway
Harrison, Thomas, esq. Hartshorn Potteries, Director of Remington's Direct London and Manchester Railway
Heneage, Charles, esq. 17, Pall-mall, Cadeley House, Lincolnshire, Director of the Brighton and Cheltenham Railway
Hill, John, esq. Derby, Director of the Leeds, Huddersfield, Sheffield, and South Staffordshire, and of the Derbyshire, Staffordshire, and Worcestershire Junction Railways
Hine, Richard, esq. Macclesfield, Director of Remington's Direct London and Manchester Railway
Holford, John, esq. Manchester, Director of Remington's Direct London and Manchester, of the Direct East and West Junction, and of the Derbyshire, Staffordshire, and Worcestershire Junction Railways
Howard, John, esq. Britannia Foundry, Bedford, Director of Remington's Direct London and Manchester Railway
Hurst, George, esq. Bedford, Director of Remington's Direct London and Manchester Railway
Jameson, John, esq. St. George's-row, Brighton, Director of the Cumberland Union, and Great Leeds and London Railways
Jameson, William, esq. Shelton, Staffordshire, Director of the Staffordshire Potteries Railway
Johnson, Richard William, esq. Moorgate, Director of the Derbyshire, Staffordshire, and Worcestershire Junction, of the Leeds, Huddersfield, Sheffield, and South Staffordshire, of the Direct East and West Junction, and of Remington's Direct London and Manchester Railways
Johnson, Daniel Turton, esq. Aldermary Churchyard, Director of the Derbyshire, Staffordshire, and Worcestershire Junction, of the Leeds, Huddersfield, Sheffield, and South Staffordshire, of the Direct East and West Junction, and of Remington's Direct London and Manchester, and of the Chester and Manchester Direct Railways
Jones, J. P. Rev. Alton Vicarage, Cheadle, Staffordshire, Director of Remington's Direct London and Manchester, of the Leeds, Huddersfield, Sheffield, and South Staffordshire, and of the Derbyshire, Staffordshire, and Worcestershire Direct Junction Railways
King, William, esq. Waterloo-place, Director of Freemasons' Life Assurance
Keene, John Joseph, esq. St. John's Wood, Regent's Park, Director of the National Bank of Ireland, and Chester and Manchester Direct Railway
Knell, Waller W. esq. Rectory Villa, Stoke Newington
Kilpin and Son, Bedford
Knight, Edward, esq. M.D. Stafford, Director of the Derbyshire, Staffordshire, and Worcestershire Junction, and of the Leeds, Huddersfield, Sheffield, and South Staffordshire Railways
Lassetter, Richard, esq. Uttoxeter, Director of the Derbyshire, Staffordshire, and Worcestershire Junction Railway
Lea, John Wheeley, esq. Worcester, Vice-Chairman of the Severn Commission, and Director of the Leeds, Huddersfield, Sheffield, and South Staffordshire Railway
Lees, David, esq. Wednesbury, Director of the Derbyshire, Staffordshire, and Worcestershire Junction Railway
Lambert, Richard, esq. Lyston Hall, Sudbury
Langley, Henry, esq. Rakeway House, Cheadle, Director of Remington's Direct London and Manchester, of the Leeds, Huddersfield, Sheffield, and South Staffordshire, and of the Derbyshire, Staffordshire, and Worcestershire Junction Railways
Lomax, W. H. esq. Eccleshall
Manwaring, John, esq. Eagle Hall, Patley Bridge
Maskary, Thomas, esq. Norberry Hall, Ashbourne
M'Cann, Nicholas, esq. 50, Parliament-street
M'Donald, W. esq. Bristol-road House, Birmingham
Meteyard, Horace William, esq. Chatham-place, Director of Remington's Direct London and Manchester, of the Derbyshire, Staffordshire, and Worcestershire Junction, of the Leeds, Huddersfield, Sheffield, and South Staffordshire, of the Direct East and West Junction, and of the Chester and Manchester Direct Railways
Middleton, Edward, esq. Chad, Edgbaston, Birmingham
Milner, William, esq. Tean, Staffordshire, Director of the Leeds, Huddersfield, Sheffield, and South Staffordshire, and of the Derbyshire, Staffordshire, and Worcester Junction Railways
Minors, John, esq. the Parks, Uttoxeter, Director of the East and West Junction, and of the Leeds, Huddersfield, Sheffield, and South Staffordshire Railways
Moore, Major, Ann-street, Carendish-square, Director of the Indian Peninsular Railway
Murray, Lamer, T. esq. 16, George-street, Hanover-square, Director of the National Loan Assurance Company
Nadin, Joseph, esq. Staplehill, Derbyshire, Director of Remington's Direct London and Manchester Railway
Nadin, Nathaniel, esq. Staplehill, Derbyshire, Director of Remington's Direct London and Manchester Railway
Nance, James, esq. Eccleshall
Nerachar, Thomas Henry, esq. Dudley
Neville, John, esq. Hazelour Hall, near Lichfield, Director of the South Staffordshire Railway
Neville, Thomas, esq. Sharston, near Lichfield
Norris, Edward, esq. Clairville, Director of Remington's Direct London and Manchester Railway
Norton, Joseph, esq. Clayton West, near Huddersfield, Director of the Huddersfield, Halifax, and Bradford Union, of the Wakefield and Harrogate Junction, of the Liverpool and Leeds Direct, of the Leeds and York, and of the Keighley, Halifax, and Huddersfield Junction Railways
Ogle, Nathaniel, esq. Heath-lane Lodge, Twickenham
Price, Rev. Thomas, Llarothel, Herefordshire
Parker, William, esq. Lysways Hall, Lichfield, Director of the Derbyshire, Staffordshire, and Worcester Junction Railway
Parkinson, John, esq. F.R.S. Cambridge-terrace, Hyde-park, Director of the Northampton, Banbury, and Cheltenham, of the Leeds, Huddersfield, Sheffield, and South Staffordshire, of the Derbyshire, Staffordshire, and Worcestershire, and of the Direct London and Holyhead, and Port Dynllaen Railways
Pilkington, Henry, esq. Ashby-de-la-Zouch, Director of Remington's Direct London and Manchester Railway
Riddell, Robert Andrew, esq. 23, Bryanston-street, Portman-square, Director of the Tring, Reading, and Basingstoke, and of the Oxford and Worcester Extension Railway
Riley, William T. esq. Pendeford House, Wolverhampton, and Millfield Iron Works, Bilston, Director of the Derbyshire, Staffordshire, and Worcestershire Junction, and of the Shropshire Mineral Railways
Robinson, John, esq. Sileoates Cottage, Wakefield, Director of the Bradford, Wakefield, and Midlands; of the Stockton, North, and Leeds; Leeds, York, and Midlands Junction; Leeds, Huddersfield, Sheffield, and South Staffordshire Railways
Sanders, John, esq. Royal Foundry, Bedford, Director of Remington's Direct London and Manchester Railway
Sharpe, George Henry, esq. Bedford, Director of Remington's Direct London and Manchester Railway
Serrel, Dalton Haskoll, esq. Tokenhouse-yard, London, Director of Remington's Direct London and Manchester Railway
Skene, George R. esq. F.R.M. and C.S. Bedford, Proprietor of the *Bedford Mercury*, Director of Remington's Direct London and Manchester Railway
Skrine, Julian, esq. Cambridge, Director of the Cambridge and Lincolnshire Railway
Small, Nathaniel Wells, esq. Brewer, Bedford, Director of Remington's Direct London and Manchester Railway
Smith, William, esq. Clifton, near Ashbourne, Director of the Tean and Dove Valley Railway, of the Derbyshire, Staffordshire, and Worcestershire Junction Railway, of the Leeds, Huddersfield, Sheffield, and South Staffordshire Railway, and of the Direct East and West Junction Railway
Smith, Thomas, esq. Blore Hall, Ashbourne, Director of the Leeds, Sheffield, Huddersfield, and South Staffordshire, and of the Derbyshire, Staffordshire, and Worcestershire Junction Railways
Smith, John, esq. Barton-house, Ashbourne, Director of the Leeds, Hudderafield, Sheffield, and South Staffordshire Railway
Smith, John Huson, esq. 57, Friday-street, London
Spiers, Edmund John, esq. Carlton Villas, Maida Vale, Paddington, Director of the Derbyshire, Staffordshire, and Worcestershire Junction, and of the Leeds, Huddersfield, Sheffield, and South Staffordshire Railways
Standley, Thomas, esq. Hartshorn, Potteries, Director of Remington's Direct London and Manchester Railway
Swift, H. esq. Eccleshall
Swift, Geo. esq. Eccleshall
Trapp, Benjamin, esq. Banker, Bedford, Director of Remington's Direct London and Manchester Railway
Trapp, Thomas S. esq. Banker, Bedford, Director of Remington's Direct London and Manchester Railway
Tyler, George, esq. Holloway-place, London, Director of the Derbyshire, Staffordshire, and Worcestershire Junction, of the Leeds, Huddersfield, Sheffield, and South Staffordshire, and of the Direct East and West Junction Railways.
Thomas, Edward Wynne, esq. Oswestry
Thompson, Joseph, esq. Hartshorn, Potteries, Director of Remington's Direct London and Manchester Railway
Tylecote, Edward, esq. Great Haywood, Staffordshire, Director of the Derbyshire, Staffordshire, and Worcestershire Junction, and of the Leeds, Huddersfield, Sheffield, and South Staffordshire Railways
Walter, James Smith, esq. Director of the Hayes, Bakewell, Derbyshire, Leeds, Hudderafield, Sheffield, and South Staffordshire Railways
Waller, Major James, K.H., St. James's-square, Deputy Chairman of the South and Midland Counties Railway
Walters, John Thomas, esq. Rugeley, Director of the Leeds, Huddersfield, Sheffield, and South Staffordshire Railway
Wardle, Henry, esq. Macclesfield, Director of Remington's Direct London and Manchester, and Derbyshire, Staffordshire, and Worcestershire Junction Railways
Wheelton, John, esq. Meopham Bank, Tunbridge, late Sheriff of London and Middlesex, Director of the Leicester and Bedford, of the Trent Valley Continuation, and of the Chepstow, Forest of Dean, and Gloucester Junction Railways
Williams, William, esq. Royal Foundry, Bedford, Director of Remington's Direct London and Manchester Railway
Wood, John, esq. Wednesbury, Director of the Derbyshire, Staffordshire, and Worcestershire Junction Railways
Weston, Thomas, esq. Tean, Staffordshire, Director of the Leeds, Hudderefield, Sheffield, and South Staffordshire, and of the Derbyshire, Staffordshire, and Worcestershire Junction Railways
Wood, William, esq. M.D. Chetwynd House, Newport, Salop, Director of the Shropshire Mineral, and of the Leeds, Huddersfield, Sheffield, and South Staffordshire Railways
Wood, Charles, esq. Uttoxeter, Director of the Derbyshire, Staffordshire, and Worcestershire Junction, and of the Leeds, Hudderafield, Sheffield, and South Staffordshire Railways.

ENGINEERS.—Sir John Rennie and George Remington, esq.

BANKERS.

Messrs. Rogers, Olding, and Co.; Messrs. Prescott, Grote, and Co.

SOLICITORS.

W. A. Bainbrigge, esq. Uttoxeter
Messrs. Bass and Sweeting, Burton-upon-Trent
W. W. Ward, esq. Stafford
Messrs. Owens and Green, Newtown

SECRETARY.—George Webb, esq. No. 1, Moorgate, London.

The Eastern terminus of this railway will commence at or near Burton-upon-Trent, having a direct communication with the London and Manchester, Derby and Birmingham, and all the railways verging to the north and south-east of England, as well as affording the nearest practicable route to the Metropolis.

Passing from the valley of the Trent, it will be carried in a direct line to the county town of Stafford, where at the north end of the town, and upon the Grand Junction Railway, it is proposed to construct a station, thus affording this rich agricultural district a communication with Liverpool and the north and south.

Thence the line will be carried on a water level to Newport and Wellington, where it may join the proposed Wolverhampton and Shrewsbury Railway, or proceed by an independent course to Shrewsbury.

From this latter place it will pass along the course of the river Rea to Martin Pool, to its terminus on the proposed Worcester and Portdynllaen line, near Newtown.

It is impossible to over-estimate the advantages of this railway. It will pass through a course of country unequalled in native wealth, and quite able to support a railway, independent of all extraneous traffic.

First.—It will connect the rich valleys of the Dove, Blythe, Trent, and Severn, giving a market to the valuable agricultural produce of one of the richest districts of England.

Second.—It will afford another direct route to the metropolis, as well as connecting, in one link, the northern and southern railways.

Third.—It will give the nearest route to Ireland by many miles, to all the eastern and midland counties of England.

Fourth.—It will communicate with the important breweries of Burton-upon-Trent, and, traversing the rich coalfields of Staffordshire and Shropshire, will pass the lead-mines and coal-measures of Asterley, Westbury, and Pontesbury in the Rea Valley, and join the whole to the Welsh flannel-manufactories of Newtown. It is computed that the traffic which can be furnished by the produce of the soil and manufactories alone will give a profit of 12 per cent.

Fifth.—It will unite the towns of Burton, Stafford, Shrewsbury, and Newtown, some of the most important places in point of wealth, population, and local influence in the district traversed by the line.

Sixth.—As a passenger line the promoters are unwilling to over-estimate its advantages. To Aberystwith, North Wales, Ireland, and the North, it must necessarily be the shortest and most direct route, and afford to the eastern parts of England a desideratum.

Immense local influence will be brought to its support, and the wishes of noblemen and gentlemen on the line be in every way consulted. The levels and gradients are most favourable; indeed, from Stafford to Newtown it may be said to be literally on a water level.

Applications for shares may be addressed, in the form annexed, to the Secretary, No. 1, Moorgate, London; or to the following solicitors and brokers:—

Messrs. B. and M. Boyd, New Bank-buildings
Messrs. Towaley and Whitehead, Liverpool
Messrs. Cameron and Co. Liverpool
Mr. Morris Reynolds, Liverpool
Mr. Richard E. Hine, Macclesfield
Mr. James Jamieson, Leeds
Messrs. Wellbeloved and Oastler, Leeds
Mr. Frederick Stamp, Hull
Mr. Richard Baines, Blackburn
Mr. George Clark, Bradford
Mr. Wm. Mason, Bradford
Mr. William Cronheim, Halifax
Messrs. Freeman and Son, Northampton
Messrs. Grayston and Earle, York
Messrs. Kettering and Marshall, Leeds
Mr. Joseph Clark, jun. Southampton
Messrs. Tate and Nash, Bristol
Messrs. Houghland and Lecae, Manchester
Messrs. A. Birchall and Co. Manchester
Mr. W. H. Collis, Birmingham
Mr. L. Weatherburn, jun. Huddersfield
Messrs. Everard and Co. Huddersfield
Messrs. Payne and Freer, Leicester
J. N. Balme, Gloucester

FORM OF APPLICATION FOR SHARES.

To the Provisional Committee of the Burton-upon-Trent, Stafford, Shrewsbury, and Newtown Railway.

Gentlemen,—I request you will allot me shares of 20*l.* each in the above-named Company, and I hereby undertake to accept the same, or any less number that may be allotted to me, to pay the deposit of 2*l.* 2*s.* per share thereon, and sign the subscribers' agreement and parliamentary contract when required.

Dated this day of October, 1845.

Name in full.....
Place of business, occupation, or profession (if any) }.....
Residence.....
Usual signature .....
Name, residence, and profession of referee

TRING, CAMBRIDGE, and NEWMARKET RAILWAY COMPANY.

(Provisionally Registered.)

Capital, 500,000*l.* in 24,000 Shares of 25*l.* each.
Deposit, 2*l.* 12*s.* 6*d.*

PROVISIONAL COMMITTEE.

The Right Honourable Lord Edward Chichester, Eaton-place
The Right Honourable Lord Viscount Mandeville, Kimbolton Park
The Honourable Percy Evans Freke, Belgrave-square, Director of the Isle of Man Railway
The Honourable John Oliphant Murray, Half-moon-street, Piccadilly
William Ainsworth, esq. Luton
John Anderson, esq. Lothbury, Vice-Chairman of the Leeds, Fleetwood, and Liverpool Railway Company
John Anstee, esq. Chalton
Charles Barry Baldwin, esq. M.P. Chairman of the Paris and Strasburg, and Leeds, Fleetwood, and Liverpool Railways.
Alexander Bicknell, esq. Bristol
G. A. Brown, esq. Old Broad-street, Director of the Leeds, Fleetwood, and Liverpool Railway
W. Downing Bruce, esq. Charles-street, St. James's, and Ripon, Yorkshire, Director of the Barbadoes General Railway
John Burgess, esq. Boroughreeve, Manchester
Nathaniel Cooke, esq. Director of the Ambergate, Nottingham, Boston and Eastern Junction Railway
Major Croft, Regent-street, Deputy Chairman of the Chester and Manchester, and Director of the Somerset Midland Railway.
J. R. Croft, esq. Birkenhead
Miles Dormer, esq. Hans-place, Director of the Larne, Belfast, and Ballymena Railway
John N. Duncan, esq. Luton
Charles Edlin, esq. Mortlake, Director of the Wrexham and Crewe
John Fairlie, esq. Cheveley-park, Newmarket, Director of the Newmarket and Chesterford, and Newmarket, Bury St. Edmund's, and Thetford Railways
Thomas John Ficklin, esq. Cambridge
John Fowler, esq. Director of Amman Vale Iron and Coal Company, Belmont House, Clifton
Lieutenant-Colonel Gillies, Porchester House, Bayswater, Director of the Metropolitan and North Barnet Railway
John Gray, esq. Luton
W. Green, esq. Walnut Tree House, Leytonstone, Director of the Leeds, Fleetwood, and Liverpool Railway
Sir John Hare, bart. Langham-place, Director of the London and Manchester Railway
Alfred Heale, esq. Luton
Captain Hislop, Pall-mall, Director of the Lynn, Wisbeach, and Peterborough, Midland Counties, and Birmingham Junction Railway
John Holmes, esq. St. James's-street, Director of the York and Lancaster Railways
Robert How, esq. merchant, Bramingham-villa, Luton
Henry Howlet, esq. Cambridge-terrace, Hyde-park
Francis Joseph Humbert, esq. Oxford-street, Hyde-park, Director of the Barbadoes General Railway
Sir W. B. Johnston, bart. Hilton, Aberdeenshire, Director of the Chepstow, Forest of Dean, and Gloucester Junction Railway
Richard Jones, esq. Luton
Herbert Ingram, esq. Acton-park, Director of the Leeds, Fleetwood, and Liverpool Railway
James Lamb, esq. Hyde Park-square, Director of the Tring, Reading, and Basingstoke Railway
Edward Legh, esq. The Limes, Lewisham, Chairman of the Association of the Irish Mine Company, and Director of the Direct London and Holyhead Railway
Captain J. P. Macdougall, North Brixton, Chairman of the Isle of Man, and Director of the Tring, Reading, and Basingstoke Railway
W. J. M'Guire, esq. Hampton-court, Director of the Direct Western Railway
George Macintosh, esq. 27, Upper Seymour-street, Portman-square, Director of the North Wales Mineral, Shrewsbury and Herefordshire, and Leeds, Fleetwood, and Liverpool Railways.
James Matthews, esq. (Messrs. Grindlay & Co.) Cornhill
Captain T. C. Newton, Bruton-street, and Lugwardine, Herefordshire, Director of the Brighton and Cheltenham Railway
J. G. Norbury, esq. Mancetter-house, Atherstone, Director of the Leicester and Bedford Railway
John Parkinson, esq. F.R.S. Director of the Reading and Reigate, and Rugby and Manchester Railways
James Yearsley, esq. Saville-row, Burlington-gardens
Frederick Charles Pawsey, esq. Lidgate Hall, Newmarket, Director of the Barbadoes General Railway
Rees Price, esq. Tyne Hall, Ilford, Director of the Jamaica Atmospheric Railway
R. A. Riddell, esq. Bryanstone-street, Chairman of the Exeter, Dorchester, and Weymouth Junction Railway
T. S. Richards, Baker-street, Portman-square, Director of the Great Western, Southern, and Eastern Counties Railway
Henry Scott, esq. Pall-mall, Director of the Leeds, Fleetwood, and Liverpool Railway
William Shaw, esq. Director of the Royal Farmers' General Fire and Life Assurance Company, and of the London and Birmingham Extension Railway
Henry Swayne, esq. Dorset-place
Sir W. Twisden, bart. Dorset-street, Director of the Thames Valley Railway
George Unwen, esq. Hyde Park-place
James Waller, esq. merchant, Luton
Major White, Pall Mall, Director of the Essex and Suffolk Railway
Wm. Willis, manufacturer, Luton
Richard Len Wilson, esq. Streadham, Director of the Northern and Southern Connecting Railway
With power to add to their number.

BANKERS

The Commercial Bank of London
Cambridge, Hitchin, Luton, and Dunstable } The London and County Joint Stock Bank
Royston, Messrs. John George Fordham and Son
Newmarket, Messrs. Eaton and Hammond

SOLICITOR

R. R. Hill, esq. 62, Moorgate-street.

LOCAL SOLICITORS

Tring, Messrs. G. and H. Faithfull; Luton and Dunstable, Frederick Chase, esq. Luton; William Hunt, esq. Luton; Royston, Messrs. Wortham and Son; Cambridge, Henry Rance, esq.; Newmarket, Messrs. Isaacson and Gillson.

ACTING ENGINEER

Oliver Byrne, esq.

ARCHITECT AND SURVEYOR

Francis E. Fowler, esq. F.S.A. M.I.B.A.

SECRETARY

B. Brough, esq.

Leaving London as the grand source, the towns comprised in, and benefited by, the plan now submitted, are the following:—Tring, Dunstable, Luton, Hitchin, Baldock, Royston, Cambridge, and Newmarket, Bury, Ipswich, Norwich, Ely. In fact the entire circle of the western counties, bounded by the Thames southward, and by the Wash to the north, will be brought into immediate relation with the metropolis, and must, therefore, derive many essential advantages at present withheld from them.

Independently of its integral traffic, Cambridge is a centre and resting-place for the traveller westward, and for all proceeding from the south-west to the north. Cambridge comprises fourteen parishes, and sends two Members to Parliament. The population, including the University and suburbs, cannot be estimated at less than 40,000, of which the wealthier class bear a proportion of three in four.

Royston, the next town in the direction of Tring and London, is situated partly in Cambridgeshire, and partly in Hertfordshire, at the bottom of a hill, among chalk-downs. In this town, there are five annual fairs, and it is a very considerable market for corn. As the average produce of England and Wales in wheat, barley, oats, rye, peas, beans, and potatoes amounts to 290,000,000*l.* annually, some idea may be formed of the proportional movement in districts of a certain extent in a high state of cultivation.

Baldock is a populous town in Hertfordshire, situate in a chalky and fertile soil, on the old Roman road leading to Oakham and St. Neots. Corn and malt are great staples, and there are six fairs annually. The road distance is about nine miles from Royston, and thirty-seven from London. In reviewing this great malting district, it may be useful to notice the number of imperial bushels of malt charged with duty in England from 1834 to 1840:—

1834	34,651,253	Quarters.
1835	34,072,665	,,
1836	38,261,833	,,
1837	35,657,987	,,
1838	38,629,593	,,
1839	33,687,392	,,
1840	34,006,055	,,

since which the increase has been considerable. The total for the three kingdoms amounts to 40,000,018 quarters for 1840.

Hitchen is also a place of considerable trade and increasing population, with extensive corn markets. The populous town of Dunstable comes next under consideration as adding value to the traffic of this Line. Situated in the county of Bedford, at the foot of the Chiltern hills, the prevailing trade is in straw plait, and manufactures generally. Notwithstanding the great activity in this branch in Dunstable and the neighbouring towns, 250,000 lbs. of the prepared material are annually imported, and upwards of 10,000 lbs. weight in a manufactured shape. The distance of South Bedford is 29 miles.

The progressive increase in the population of Luton is equivalent to 1,000 in the year, and the attendance from its neighbourhood at the weekly markets amounts to 3,000 persons. There are no less than five daily Coaches to Luton, besides Passenger Vans. Altogether this town is of high importance, in reviewing statistically the probable returns of the Line.

Tring, now a populous town, distant 31 6-8 miles from London by the London and Birmingham Railway, is of necessity a place of rapidly increasing importance. There are five annual Fairs, and an extensive weekly market for Corn, Meat, and Straw-plait.

Coals will be brought by way of Lynn to Cambridge, and at least 40,000 tons will annually be conveyed along the projected Line; and in the general estimate of the traffic, it must also be kept in mind that 300,000 to 400,000 quarters of Barley are brought from the Fen Districts to Cambridge, more than two-thirds of which will be distributed along the present Line.

It must be obvious to all who dispassionately view the progress of railway enterprise in England, that every link of communication must be made good, or the system will be imperfect. If this principle holds with reference to what have hitherto been designated as "cross-roads," how much more is it applicable to those lesser Trunk Lines, which connect towns and cities of acknowledged wealth and social importance?

Of such a nature is the line now projected, which commencing at Tring, on the great Trunk Line of the London and Birmingham Railway, proceeds north-west by west through Dunstable, Luton, Hitchin, Baldock, and Royston to Cambridge. At the latter place it will join the line to Newmarket, and thus be brought into connection with the lines from Ipswich to Ely; that from Bury to Chelmsford; that which embraces the Yarmouth coast and Norwich; and with the Eastern Counties Railway. In addition to this all the northern lines in the west emerge directly from Cambridge, and proceeding through Peterborough, bring the midland and northern counties into immediate intercourse with the west, south-west and south.

From the foregoing statements it will be perceived that the country through which this Line passes is eminently agricultural, and, by its alliance with other Lines, it may be fairly calculated to accommodate, locally, a population of at least 600,000 persons. There are 400,350 statute acres in Hertfordshire, 536,313 in Cambridgeshire, and 916,760 in Suffolk, for the most part under cultivation, and extremely fertile. The net rental in annual value of landed and other property is in

Hertfordshire	1,200,000*l.*
Cambridgeshire	1,400,000*l.*
Suffolk	2,000,000*l.*

The saving in distance, in proceeding from all places North-west of Tring, to Cambridge, Newmarket, &c. is not less than 49 miles; the entire angle involved by proceeding to the Metropolis being cut off, as well as the many delays attendant upon such a mode of transit. The saving contingent to proceeding from Tring to Norwich in lieu of from London to Norwich will be a fraction under 15 miles. To the aristocracy and sporting world this Line offers inducements of no ordinary character, in connection with Newmarket as the principal training and racing establishment in the empire. The length of the present Line, say from Tring to Cambridge, will be 44 miles. The Passenger traffic may be broadly calculated from the fact, that the great feeder to this Line will be the London and Birmingham Railway with all its alliances; and the Goods traffic, based upon the fact that the Western Counties are essentially producing with reference to the Metropolis, offers undoubted proof that a revenue immediate, continuous, and increasing must be the result.

That the Line will be inexpensive and offer an excellent permanent way may be calculated from what has been stated as to the nature of the super-stratification, and from the general face of the country.

An accurate plan of the Line, with all its ascertained gradients, will be shortly ready for delivery, founded upon a very careful survey.

Prospectuses may be had of, and applications for shares, in the form annexed, made to the Secretary: to R. R. Hill, esq. 62, Moorgate-street, London, Solicitor to the Company; and of the Local Solicitors; and the following Brokers;—London, Messrs. B. and M. Boyd, 4, New Bank-buildings; Mr. A. Sym, Tokenhouse-yard; Mr. John Morgan, 2, Copthall-court; and Mr. Wood, 10, Old Broad-street. Liverpool, Mr. Crewdson, Mr. Anthony Laurie, and Messrs. J. Powell and R. Lowndes. Manchester, Mr. H. Woodhouse, and Mr. Carr. Nottingham, Mr. J. Nevill. Edinburgh, Mr. Robert Allan, and Mr. Moffatt. Glasgow, Messrs. M'Ewen and Auld. Dumfries, Mr. M'Kinnell. Aberdeen, Messrs. James Black and Co. Lancaster, Mr. W. Walsh. Leeds, Messrs. J. and T. Rhodes, and Mr. Richard Binney. Gloucester, Mr. J. N. Balme. Exeter, Messrs. Wilkinson and Sons. Bristol, Messrs. Nash and Tate. Luton, Messrs. Partridge and Jordan. Norwich, Mr. Charles S. Gilman. Reading, Mr. B. Cowderoy.

FORM OF APPLICATION FOR SHARES.

To the Provisional Committee of the Tring, Cambridge, and Newmarket Railway Company.

Gentlemen,—I request that you will allot me Shares in the above Company, on the terms and conditions of the Prospectus, and I undertake to accept the same, or any lesser number that may be allotted to me, and pay the deposit of 2*l.* 12*s.* 6*d.* per share thereon, and to sign the subscribers' agreement and parliamentary contract when required.

Dated this day of , 1845.

Name, in full .....
Trade or Profession .....
Residence.....
Place of Business (if any).....
Reference .....

THE EASTERN COUNTIES EXTENSION AND CAMBRIDGE AND WORCESTER DIRECT RAILWAY.

From Cambridge through Bedford, Blisworth, Fenny-Compton, Stratford-on-Avon, to Worcester, connecting the Eastern and North-Eastern Counties with North and South Wales, South Staffordshire, Cheshire, Shropshire, Gloucestershire, Bristol, the West of England, and the Midland Counties.

(Provisionally Registered.)

Capital £1,000,000, in 50,000 Shares of £20 each.

Deposit £2. 2s. per Share.

PROVISIONAL DIRECTORS.

Samuel Anderson, Esq., } Directors of the Eastern Counties
F. Valentine Lee, Esq. } Railway
Sir Henry Webb, Bart., Pall-mall, London
Major-General Sir Love Jones Love Parry, Bart., K.C.B., Madryn-park, Caernarvonshire
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Westenra, the Hon. J. C., M.P.
Walsh, John Henry, Esq., Worcester
Waller, Major, St. James's-square
Willes, Geo., Esq., Hungerford-park
Welch, Edward, Esq., Leamington
Walter, James Smith, Esq., Director of the Hayes, Bakewell, Derbyshire, Leeds, Huddersfield, Sheffield, and South Staffordshire Railways
Wardle, Henry, Esq., Macclesfield, Director of Remington's Direct London and Manchester, and Derbyshire, Staffordshire, and Worcestershire Junction Railways
Walker, George James Alex., Esq., Norton Villa, near Worcester
Wheelton, John, Esq., Meopham Bank, Tonbridge, Director of the Leicester and Bedford, and Chepstow, Forest of Dean, and Gloucestershire Junction Railways
Williams, Philip Henry, Esq., M.D., Worcester
Williams, William, Esq., Royal Foundry, Bedford, Director of Remington's Direct London and Manchester Railway
Wood, John, Esq., Wednesbury, Director of the Derbyshire, Staffordshire, and Worcestershire Junction Railway
Weston, Thomas, Esq., Tean, Staffordshire, Director of the Leeds, Huddersfield, Sheffield, and South Staffordshire, and of the Derbyshire, Staffordshire, and Worcestershire Junction Railways
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Woodward, John, Esq., Worcester
Warde, C. Thomas, Esq., Clopton-house, Stratford-on-Avon, and Luton Hoo, Bedfordshire
Williams, Benj., Esq., banker, 4, Whitehall
Yzarn, J. Borwick, Herne-hill, Surrey

ENGINEERS—Sir John Rennie, F.R.S.; and George Remington, Esq., C.E.

BANKERS.

London—Messrs. Barnard, Dimsdale, and Co., 50, Cornhill
" Messrs. Cockburn and Co., Whitehall
" Messrs. Hopkinson and Co., Waterloo-place
Cambridge—Messrs. Foster
Northampton—The Northamptonshire Banking Company
Leamington, Warwick, and Southam—The Leamington Priors and Warwickshire Banking Company

SOLICITORS.

Augustus Walter Arnold, Esq., 31, Golden-square
John Owens, Esq., 35, Moorgate-street
George Pell, Esq., Jun., Northampton

LOCAL AGENTS.

Worcester—Messrs. Gillam and Sons
Leamington, Warwick, and Southam—Messrs. Patterson, Haymes, Hanbury, and Gardner

SECRETARY.

D. C. Higgs, Esq.

Offices of the Company, No. 34, Moorgate-street.

PROSPECTUS.

Commencing at Cambridge, which has now become the traffic-centre of the Eastern Counties, by the line of railway intended to be formed by that Company, this line will proceed to Bedford, there passing near Olney, it will cross at or near the Blisworth Station of the London and Birmingham Railway, where it will communicate with the Northampton and Peterborough line; it will then proceed westward, crossing the Oxford and Rugby line at or near Fenny Compton, to Stratford-on-Avon, there joining the proposed line from Warwick and Leamington to Cheltenham, Gloucester, Bristol, and the West of England; continuing its course through Alcester, the line will go direct to Worcester, and thus terminate at the great centre of traffic for the mineral and manufacturing districts of South Staffordshire, Shropshire and North and South Wales. This proposed line does not interfere with any existing railways, and presenting as it does an unbroken line between two great centres of traffic, the importance of the undertaking needs no further comment.

Negotiations have been entered into with the Eastern Counties Railway Company, by which their support and co-operation will be ensured for obtaining the line now proposed.

An arrangement has also been made with the proposed Rugby, Warwick, and Worcester Company, which this line will join at Alcester, and by means of which the Eastern Counties' traffic will proceed to Worcester.

Power will be reserved to the Directors to amalgamate with any other existing or projecting Companies, or to vary the line.

Application for shares may be made to the Secretary, and to the following Sharebrokers, of whom prospectuses, with maps of the line, may be obtained:—London: Messrs. Peppercorn and Co., 2, Old Broad-street; Messrs. Preece and Evans, 39, Lothbury; Messrs. Boyd.—Birmingham: Mr. W. H. Collis.—Blackburn: Mr. Thomas Boardman.—Bradford: Mr. George Clark.—Bristol: Messrs. Tate and Nash.—Cheltenham: Mr. James Stokes.—Coventry: Mr. J. S. Holland.—Derby: Messrs. Eyre and Shaw.—Dublin: Messrs. Labertouche and Stafford.—Edinburgh: James Pringle, Esq., 79, Princes-street; Messrs. Beaumont and Langworthy.—Glasgow: Messrs. Duncan and Hutchinson.—Halifax: Mr. W. Cronheim.—Huddersfield: Messrs. Everard and Co.—Hull: Mr. Frederick Stamp.—Leeds; Messrs. Wellbeloved and Oastler.—Leicester: Messrs. Payne and Freer.—Liverpool: Messrs. Townley and Whitehead; Messrs. Cameron and Co.; Mr. Morris Reynolds.—Macclesfield; Mr. Richard E. Hine.—Manchester: Messrs. Cardwell and Sons; Messrs. A. Bitchall, and Co.; Mr. Charles O'Neal.—Nottingham: Mr. Charles Spencer.—Sheffield: Messrs. T. N. Bardwell and Sons.—Southampton: Mr. Joseph Clark, Jun.—Wakefield: Mr. E. H. Armitage.—Worcester: Mr. Miles.—York: Messrs. Grayston and Earle.

FORM OF APPLICATION FOR SHARES.

To the Provisional Committee of the Eastern Counties Extension and Cambridge and Worcester Direct Railway.

Gentlemen,—I request you to allot me shares of 20*l.* each in the above railway; and I undertake to accept the same, or such less number as you may appropriate to me, subject to the regulations of the company, and to sign the necessary deeds, and to pay when required the deposit thereon of 2*l.* 2*s.* per share.

Dated this day of , 1845.

Name in full.....
Profession and professional residence in full ..
Private residence in full .....
Usual signature .....
Name .....
Residence .....
And profession of referee.....

Offices, 34, Moorgate-street.

RAILROADS.—DEAN & Co., 35, 36, & 40, Threadneedle-street, Lithographers, Letter-press, and Copper-plate Printers, having made considerable additions to their premises, enabling them to draw and print any number or extent of railway plans per week, beg to inform companies requiring the issue of such Maps, Plans, or Prospectuses, that they are ready to engage for the speedy and accurate execution of orders in lithography, letter-press, or copper-plate.

ANDREW SMITH, Princes-street, Leicester-square, London. ENGINEER, MACHINIST, IRON and BRASS FOUNDER, &c.

Patentee and manufacturer of improved steam-engines, rapid steam-generators, railway wheels, rails, and chairs, propellers for canal and river navigation, rope-making, flax-dressing, and other machinery, raising and lowering machines, wharf, warehouse and truck cranes, tramway, traversing and stationary purchase, crabs, tackle, &c. Also steam-engines, and boilers of various constructions, bone, sugar, and mill-work, and machinery of every description manufactured and repaired. Saw-mills, breweries, and factories attended.

PLANING, BORING, TURNING, SCREW-CUTTING, &c., FOR THE TRADE.

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